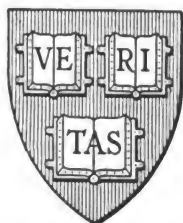


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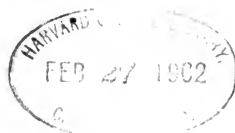
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PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

V.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Flies in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1897).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1899). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Slave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries; Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation, School Gardens; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1901, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1896, and in the quarterly valuations thereafter.

XII VALUES OF FOREIGN COINS AND CURRENCIES.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, and 1884-1887 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic.	Gold and silver.	Peso.....	\$0.96, 5	Gold—argentine (\$4.82, 4) and $\frac{1}{2}$ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold.....	Crown.....	.20, 3	Gold—20 crowns (\$4.05, 2) and 10 crowns.
Belgium.....	Gold and silver.	Franc.....	.19, 3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil.....	Gold.....	Milreis.....	.54, 6	Gold—5, 10, and 20 milreis; silver— $\frac{1}{2}$, 1, and 2 milreis.
British North America (except Newfoundland).	.....do.....	Dollar.....	1.00	
British Honduras.....	.....do.....	.....do.....	1.00	
Chile.....	.....do.....	Peso.....	.36, 5	Gold—escudo (\$1.25), doubloon (\$3.05), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do.....	Colon.....	.46, 5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centimos.
Cuba.....	Gold and silver.	Peso.....	.92, 6	Gold—doubloon (\$5.01, 7); silver—peso (60 cents).
Denmark.....	Gold.....	Crown.....	.26, 8	Gold—10 and 20 crowns.
Egypt.....	.....do.....	Pound (100 piasters).	4.94, 3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland.....	.....do.....	Mark.....	.19, 3	Gold—10 and 20 marks (\$1.93 and \$3.85, 0).
France.....	Gold and silver.	Franc.....	.19, 3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany.....	Gold.....	Mark.....	.23, 8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do.....	Pound sterling..	4.86, 6 $\frac{1}{2}$	Gold—sovereign (pound sterling) and half sovereign.
Greece.....	Gold and silver.	Drachma.....	.19, 3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti.....	.....do.....	Gourde.....	.96, 5	Silver—gourde.
India†.....	Gold.....	Rupee.....	.32, 4	Gold—sovereign (\$4.8665); silver—rupee and divisions.
Italy.....	Gold and silver.	Lira.....	.19, 3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan‡.....	Gold.....	Yen.....	.49, 8	Gold—1, 2, 5, 10, and 20 yen.
Liberia.....	.....do.....	Dollar.....	1.00	
Netherlands.....	Gold and silver.	Florin.....	.40, 2	Gold—10 florins; silver— $\frac{1}{2}$, 1, and 2 $\frac{1}{2}$ florins.
Newfoundland.....	Gold.....	Dollar.....	1.01, 4	Gold—\$2 (\$2.02, 7).
Peru§.....	.....do.....	Sol.....	.48, 7	Gold—libra (\$1.8665); silver—sol and divisions.
Portugal.....	.....do.....	Milreis.....	1.08	Gold—1, 2, 5, and 10 milreis.
Russia||.....	.....do.....	Ruble.....	.51, 5	Gold—imperial (\$7.718) and $\frac{1}{2}$ imperial (\$3.80); silver— $\frac{1}{4}$, $\frac{1}{2}$, and 1 ruble.
Spain.....	Gold and silver.	Peseta.....	.19, 3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold.....	Crown.....	.26, 8	Gold—10 and 20 crowns.
Switzerland.....	Gold and silver.	Franc.....	.19, 3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey.....	Gold.....	Piaster.....	.04, 4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay.....	.....do.....	Peso.....	1.03, 4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver.	Bolivar.....	.19, 3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 27). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

‡ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

§ Gold standard adopted October 13, 1900.

|| For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 234.

XIV VALUES OF FOREIGN COINS AND CURRENCIES.

B.—Countries with fluctuating currencies, 1874-1896.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver.....	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.33,6	\$0.42
Bolivia.....	do.....	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America.....	do.....	Peso.....	.96,5	.91,8	.....	.69,9	.68	.85
China.....	do.....	Haikwan tael.	1.61	.....	.....	.....	.....	.....
Colombia.....	do.....	Peso.....	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador.....	do.....	do.....	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†.....	Gold.....	Pound (100 piasters).	.....	4.97,4	4.90	4.94,3	.....	.....
India.....	Silver.....	Rupee.....	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan.....	Gold.....	Yen.....	.99,7	.99,7	.....	.99,7	.99,7	.99,7
	Silver.....		.....	.....	.87,6	.75,3	.73,4	.91,7
Mexico.....	do.....	Dollar.....	1.04,7½	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands*.....	Gold and Silver.	Florin.....	.40,5	.38,5	.....	.....	.....	.....
Peru.....	Silver.....	Sol.....	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia.....	do.....	Ruble.....	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli.....	do.....	Mahbub of 20 piasters.	.87,09	.82,0	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1895.	1896.
Austria-Hungary*.	Silver.....	Florin.....	\$0.38,1	\$0.34,1	.....	.....	.....	.....
Bolivia.....	do.....	Boliviano.....	.77,1	.69,1	\$0.61,3	\$0.51,6	\$0.45,5	\$0.49,1
Central America.....	do.....	Peso.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Colombia.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Ecuador.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
India.....	do.....	Rupee.....	.36,6	.32,8	.29,2	.24,5	.21,6	.23,3
Japan.....	do.....	Yen.....	.83,1	.74,5	.66,1	.55,6	.49,1	.52,9
Mexico.....	do.....	Dollar.....	.83,7	.75	.66,6	.56	.49,5	.53,3
Peru.....	do.....	Sol.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Russia.....	do.....	Ruble.....	.61,7	.55,3	.49,1	.41,3	.36,4	.39,3
Tripoli.....	do.....	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.41,1	.44,3

* The silver standard prevailed in Austria-Hungary up to 1822. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40,2 cents.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1898.				1899.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.....	\$0.42,4	\$0.40,9	\$0.41,8	\$0.43,6	\$0.43,9	\$0.43,4	\$0.44,3	\$0.43,6
Central America.....	Silver peso.....	.41,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
China	Amoy tael.....	.68,5	.66,2	.67,6	.70,6	.71	.70,2	.71,6	.70,5
	Canton tael.....	.68,3	.66	.67,4	.70,4	.70,8	.70	.71,4	.70,3
	Chefoo tael.....	.65,5	.63,3	.64,6	.67,5	.67,9	.67,2	.68,4	.67,4
	Chinkiang tael..	.66,9	.64,6	.66	.69	.69,3	.68,6	.69,9	.68,9
	Fuchau tael.....	.63,4	.61,2	.62,5	.65,3	.65,6	.65	.66,2	.65,2
	Haikwan tael.....	.69,7	.67,3	.68,8	.71,8	.72,2	.71,4	.72,8	.71,8
	Hankau tael.....	.64,1	.61,9	.63,2	.66	.66,4	.65,7	.67	.66
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.64,3	.63	.65	.67,9	.68,2	.67,5	.68,8	.67,8
	Niuchwang tael.	.65,9	.62	.63,4	.66,2	.66,5	.65,9	.67,1	.66,1
	Shanghai tael...	.62,6	.60,4	.61,7	.64,5	.64,8	.64,1	.65,4	.64,4
	Swatow tael.....	.63,3	.61,1	.62,4	.65,2	.65,5	.64,9	.66,1	.65,1
	Takao tael.....	.66	.66,6	.68	.71	.71,4	.70,7	.72	.71
	Tientsin tael.....	.66,4	.64,1	.65,5	.68,4	.68,8	.68	.69,4	.68,3
Colombia.....	Silver peso.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
Ecuador.....	do.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
India.....	Silver rupee.....	.20,1	.19,1	.19,9	.20,7	.20,8	.20,6	.21	.20,7
Mexico.....	Silver dollar.....	.46	.44,4	.45,4	.47,4	.47,7	.47,2	.48,1	.47,4
Persia.....	Silver kran.....	.07,8	.07,5	.07,7	.08	.08,1	.08	.08,2	.08
Peru.....	Silver sol.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6

Countries.	Monetary unit.	1900.				1901.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.....	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1
Central America.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1
China	Amoy tael.....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7
	Chinkiang tael..	.67,5	.68,8	.69,3	.71,2	.74	.71,2
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5
	Haikwan tael....	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2
	Hankau tael.....	.64,7	.65,9	.66,2	.68,2	.70,9	.68,2
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4
	Shanghai tael...	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6
	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4
	Takao tael.....	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4
	Tientsin tael....	.67	.68,3	.68,7	.70,7	.73,4	.70,7
Colombia.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1
Ecuador.....	do.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1
India.....	Silver rupee.....	.20,3	.20,7	.20,8	.....	.....	.....
Mexico.....	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49
Persia.....	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3
Peru.....	Silver sol.....	.42,7	.43,6	.43,8	.45,7	.....	.....

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† The sovereign is the standard coin of India, but the rupee is the money of account.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal.....	4.422 gallons.
Ardeb.....	Egypt.....	7.697 bushels.
Are.....	Metric.....	0.02472 acre.
Arobc.....	Paraguay.....	25 pounds.
Arratel or libra.....	Portugal.....	1.011 pounds.
Arroba (dry).....	Argentine Republic.....	25.3175 pounds.
Do.....	Brazil.....	32.38 pounds.
Do.....	Cuba.....	25.3664 pounds.
Do.....	Portugal.....	32.38 pounds.
Do.....	Spain.....	25.36 pounds.
Do.....	Venezuela.....	25.4024 pounds.
Arroba (liquid).....	Cuba, Spain, and Venezuela.....	4.263 gallons.
Arshine.....	Russia.....	28 inches.
Arshine (square).....	do.....	5.44 square feet.
Artel.....	Morocco.....	1.12 pounds.
Baril.....	Argentine Republic and Mexico.....	20.0787 gallons.
Barrel.....	Malta (customs).....	11.4 gallons.
Do.....	Spain (raisins).....	100 pounds.
Berkovets.....	Russia.....	361.12 pounds.
Bongkal.....	India.....	832 grains.
Bouw.....	Sumatra.....	7,006.5 square meters.
Bu.....	Japan.....	0.1 inch.
Butt (wine).....	Spain.....	140 gallons.
Cafiso.....	Malta.....	5.4 gallons.
Candy.....	India (Bombay).....	520 pounds.
Do.....	India (Madras).....	500 pounds.
Cantar.....	Morocco.....	113 pounds.
Do.....	Syria (Damascus).....	575 pounds.
Do.....	Turkey.....	124.7036 pounds.
Cantaro (cantari).....	Malta.....	175 pounds.
Carga.....	Mexico and Salvador.....	300 pounds.
Catty.....	China.....	1.333½ (1½) pounds.
Do *.....	Japan.....	1.31 pounds.
Do.....	Java, Siam, and Malacca.....	1.35 pounds.
Do.....	Sumatra.....	2.12 pounds.
Centaro.....	Central America.....	4.2631 gallons.
Centner.....	Bremen and Brunswick.....	117.5 pounds.
Do.....	Darmstadt.....	110.24 pounds.
Do.....	Denmark and Norway.....	110.11 pounds.
Do.....	Nuremberg.....	112.43 pounds.
Do.....	Prussia.....	113.44 pounds.
Do.....	Sweden.....	93.7 pounds.
Do.....	Vienna.....	123.5 pounds.
Do.....	Zollverein.....	110.24 pounds.
Do.....	Double or metric.....	220.46 pounds.
Chih.....	China.....	14 inches.

* More frequently called "kin." Among merchants in the treaty ports it equals 1.33½ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,098 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8.077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Dessiatine.....	Russia.....	2,6907 acres.
Do.....	Spain.....	1.559 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS No. 144.)	
Fanega (dry).....	Central America.....	1.5745 bushels.
Do.....	Chile.....	2.575 bushels.
Do.....	Cuba.....	1.599 bushels.
Do.....	Mexico.....	1.54728 bushels.
Do.....	Morocco.....	Strike fanega, 70 lbs.; full fanega, 119 lbs.
Do.....	Uruguay (double).....	7.776 bushels.
Do.....	Uruguay (single).....	3.888 bushels.
Do.....	Venezuela.....	1.599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddan.....	Egypt.....	1.03 acres.
Frail (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2.506 quarts.
Do.....	Mexico.....	2.5 quarts.
Frassla.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	Do.....	2.471 acres.
Hectoliter:		
Dry.....	Do.....	2.838 bushels.
Liquid.....	Do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1.422 a res.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2.2046 pounds.
Kilometer.....	Do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Koku.....	Japan.....	4.9629 bushels.
Korree.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	8.38 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	2 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	113½ bushels.
Do.....	Spain (salt).....	4.760 pounds.
League (land).....	Paraguay.....	4.633 acres.
Li.....	China.....	2.115 feet.
Libra (pound).....	Argentine Republic.....	1.0227 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.01465 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.012 pounds.
Do.....	Spain.....	1.0144 pounds.
Do.....	Uruguay.....	1.0143 pounds.
Do.....	Venezuela.....	1.0161 pounds.
Liter.....	Metric.....	1.0567 quarts.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Guiana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unlawn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	18 acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Maund.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1403 miles.
Morgen.....	Prussia.....	0.63 acre.
Okc.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.85418 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands.....	137.9 pounds.
Pie.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	39 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile, * Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	113 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	115 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5¼ pounds.
Sagen.....	Russia.....	7 feet.
Salm.....	Malta.....	490 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	Do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	Do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland.....	Do.....	1.36 acres.
Tsubo.....	Japan.....	6 feet square.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vergees.....	Russia.....	2.707 gallons.
Vers.....	Isle of Jersey.....	71.1 square rods.
Vers.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
 Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
 Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
 Gram equals 15.432 grains.
 Decagram (10 grams) equals 0.3527 ounce.
 Hectogram (100 grams) equals 3.5274 ounces.
 Kilogram (1,000 grams) equals 2.2046 pounds.
 Myriagram (10,000 grams) equals 22.046 pounds.
 Quintal (100,000 grams) equals 220.46 pounds.
 Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
 Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
 Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
 Liter equals 0.908 quart.
 Decaliter (10 liters) equals 9.08 quarts.
 Hectoliter (100 liters) equals 2.838 bushels.
 Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
 Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
 Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
 Liter equals 1.0567 quarts.
 Decaliter (10 liters) equals 2.6418 gallons.
 Hectoliter (100 liters) equals 26.417 gallons.
 Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
 Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
 Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

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THE RUSSIAN PETROLEUM TRADE.

PRODUCTION OF CRUDE OIL OF THE BAKU FIELDS.

The production of the Baku fields, as shown by the statistics annexed, was materially increased in 1900, due principally to increased drilling and to an enlargement of the area of territory operated, as many good wells were struck in that part of the Bibi-Eibat district which was leased by the Government to the highest bidders in February, 1899. At the time it was leased, it was not nearly all included in the area of developed territory; but that it was considered pretty sure territory by those who bid for it was evident from the royalties paid. As mentioned in my report of last year,* some of it was leased at 11 kopecks per pood (5.66 cents per 36.112 pounds) royalty, notwithstanding the market price of crude at the wells at the time was not more than that. I am without accurate figures for the amount of oil produced from this extension of the territory last year, but I find that in the month of November there were nearly 14,000 barrels per day produced from it.

The statistics show, as was to be anticipated from the number of wells started in 1899, that more wells were completed last year than in the preceding year, and the results were fairly satisfactory, as the initial production† of the 448 wells completed was an average of about 304 barrels per day per well, against 202 barrels per day per well from the 370 wells completed in 1899, and these 448 wells

* See CONSULAR REPORTS No. 237 (June, 1900), p. 131.

† By "initial production" is meant the production of the wells in the month in which they commenced producing.

increased the average daily production for the year about 25,000 barrels, while the 370 wells completed in 1899 only increased the daily production about 13,000 barrels. On the other hand, however, notwithstanding there were 448 new wells brought in during 1900, at the end of the year there were only 225 more producing than at the end of 1899, indicating that it required about half the wells drilled to maintain the number producing; and the average daily production per well in 1900 was only about 156 barrels, against 174 barrels in 1899, 198 barrels in 1898, 211 barrels in 1897, and 226 barrels in 1896, which can leave no doubt of the gradual draining of the territory. But this is not at all surprising; when the age of many of the wells now producing is considered, and the gradual increase in depth and of the water in the wells, it is more surprising that the decline in productiveness of the territory is not much greater.

The average depth of the wells completed in 1900 was nearly 100 feet greater than the average depth of the wells completed in the preceding year, and, while there can be no doubt that the depth of the wells must gradually and steadily increase, I do not look for it to increase so much this year as it did last, because both in the Bibi-Eibat and the other districts much comparatively new territory is being drilled, the wells in which will not be so deep as in the older territory, because it is a fair inference that the shallower strata of the newer territory have not yet been drained.

As there were not so many wells started last year as in the preceding year, it is probable that there will not be so many completed this year as last, especially if a further decline in the price of the crude occurs, which everything now seems to indicate. Under such conditions, there will not be so many wells started this year, for there can be no doubt that many operators are doing more work now than their capital justifies, and the present volume of work can only be continued with good prices for crude, particularly upon the Government territory, which is leased at very high royalties.

About the usual number of flowing wells was struck the past year, but they were not so productive as in the preceding year. The largest of these wells was struck in June and continued flowing till early in August, producing something like 2,000,000 barrels altogether and averaging 37,000 barrels per day in the month of July. This makes the recent statements of American newspapers ridiculous, that the well struck in Texas in January accredited with as much as 25,000 barrels a day was the largest well ever struck in the world. The records show that many wells have been struck in the Baku fields in past years which have started off at over 100,000 barrels per day, and one of which, I now recall, produced over 4,000,000 barrels in less than forty days—or, rather, that amount of

oil was sold from it, as undoubtedly much of its production was lost. But it is to be expected that fewer of these immense wells will be struck in the future than in the past, because of the increasing diameter of the wells; only a few years ago, wells were rarely started at Baku with a greater diameter than 20 inches or finished with larger than 12 to 14 inch pipe, while now they are in many cases started with 30 to 32 inch holes and finished with 16 to 18 inch pipe. Consequently, it requires much more gas now than formerly to make flowing wells; and it can not be doubted that the gas, as well as the oil, is diminishing in strength.

The feature of water in the wells mentioned last year shows no abatement. Indeed, it is said by some who are in a position to know that the water is steadily increasing, that no means of shutting it off have yet been discovered, and that the efforts in that direction by means of cement continue; but not more than one case out of ten or a dozen is successful.

Of course, the increasing depth of the drilling continues to advance the cost of crude, both by the addition to the expense of drilling and increased cost of pumping, as, where wells are not pumped as in America but bailed as in Baku, the longer the run of the bailer the fewer the runs it makes. But there is another element of increase in cost that must soon, if not immediately, be reckoned with, viz, the increase in the royalties paid the landowners. In last year's report, it was stated that the Government had leased considerable land in the Bibi-Eibat district at public auction to the highest bidders, some of which brought as high as 11 kopecks per pood (5.66 cents per 36.112 pounds) royalty. Late in November, 1900, the Government put up at auction a number of plots of land in the developed lines of the Balakhani, Sabunchi, and Romani districts, one of which brought the highest royalty ever paid—12.8 kopecks per pood (6.59 cents per 36.112 pounds)—and all brought very high royalties. Some of these plots were in parts of the field which has never produced wells larger than 10 to 20 barrels per day; wells so small, in fact, that only a few years ago they could not have been profitably pumped, yet these plots brought as high as 3 kopecks (1.54 cents) per pood royalty, at least four or five times as much as was paid for the richest territory only a few years ago.

As the price of crude at wells at the time of the November auction of land by the Government was only about 12 kopecks (6.18 cents) per pood, it is difficult to understand the motive of bidding 12.8 kopecks (6.59 cents) per pood royalty for any territory. It is probable, however, that the bidder anticipates a substantial advance in the price of crude in the near future and hopes to unload his lease at an advance; but it requires a more than ordinarily sanguine

disposition to entertain any such hopes. Sanguine dispositions, however, have always been and continue to be the rule instead of the exception in the Russian oil trade, even in those foreigners who have never seen the place where their money is invested. In fact, the farther away the more sanguine the disposition seems to be, for it has been stated that last October or November a company was floated in Europe to take over some of the Bibi-Eibat property, paying an average royalty of 6 kopecks per pood (3.09 cents per 36.112 pounds), when the crude of that district was selling freely at 10½ kopecks (5.4 cents) per pood, and the prospectus of the company showed only a fair profit at 14 kopecks (7.21 cents) per pood. The disappointment of the shareholders of that company is not difficult to anticipate. One hears so many fairy tales of the fabulous fortunes reaped "in a night" from the Baku business that if they are believed—they seem to be by the investors—the speculative fever is not hard to catch; the contagion is more easy because of the phenomenal success of at least one of the companies controlled in Europe.

There can be no doubt that the steadily increasing royalties must eventually add materially to the cost of the Baku crude; more rapidly, in fact, than is indicated by the area of the territory paying such royalties, for such territory, owing to its newness, will undoubtedly produce more oil to its area than the older and partially exhausted territory. In the Bibi-Eibat district, for instance, as has been shown, there is already a daily production of nearly 14,000 barrels paying high royalty, and, as most of the wells now drilling in that district are in the same sort of territory as those now producing, the increase in the cost of crude in that district in the future will be wholly out of proportion to the increase in the area of the territory; then the lower price at which the Bibi-Eibat crude sells must eventually influence the value of the whole production—perhaps not much, but every little may be important before a great while.

I must explain that as at present the principal object of the trade is residuum for fuel, the heavier the crude the better price it brings. Bibi-Eibat crude contains some benzine and perhaps a trifle more illuminating oil than the crude from the other districts, but less residuum; consequently it is at present worth from three-fourths to one-half a kopeck (0.386 to 0.27 cent) per pood less than the crude from the other fields. There is some crude in the other districts which brings 1 kopeck (0.515 cent) per pood more than the ordinary oil, because it is sufficiently heavy to be sold as fuel without the necessity of running it through the stills to take off some illuminating distillate.

It may not be uninteresting to state that efforts have recently been

made to improve upon the method of raising the oil at Baku, the principal of which was the use of compressed air. More than a year ago, one of the companies controlled in England commenced experimenting with compressed air and, I was informed, met with some success; but I have no authentic data regarding the experiment and have heard nothing whatever about the matter lately, so am compelled to infer that this method of raising the oil is not in any immediate danger of general adoption.

A very ingenious invention was introduced at Baku a short time ago, in the shape of a machine which can be attached to the pumping or bailing machinery of the well to indicate the number of runs made by the bailer. Something of this sort was made necessary by the workmen shirking when not under the observation of their foremen, the opportunities for which were many and good, as bailing is generally maintained night and day. This machine seemed on the way to general use, when an English engineer went a step farther and got up a very simple arrangement which showed not only the number of runs made by the bailer, but the depth of each run, by pencil strokes upon a small piece of paper, the stroke of the pencil being on scale to the depth of the well. This affair, if it proves practical (which I believe is not yet thoroughly demonstrated), will be of immense value as a check on the men who run the bailer; for, as I explained last year in connection with the water in the wells, different wells require different pumping in order to keep the water down, a well with much water requiring two runs to the bottom to one run to the top for oil, while a well with less water will require only one run to the bottom for water to two runs from the top for oil.

PRICES OF CRUDE AT WELLS.

The following were the average monthly prices of crude at wells in the past year, in kopecks per pood and cents per barrel of 42 gallons, on a basis of 51.5 cents to the ruble:

Month.	Per pood.	Per barrel.
	<i>Kopecks.</i>	<i>Cents.</i>
January.....	16.4	70.3
February.....	16.5	70.8
March.....	17	71
April.....	17.5	75.1
May.....	18.125	77.8
June.....	18	77.2
July.....	17	73
August.....	16.5	70.8
September.....	15	64.4
October.....	11.5	49.3
November.....	12.5	53.6
December.....	12	51.5

The closing price in December was about 11 kopecks per pood, or about 47.2 cents per barrel.

With the exception of the slight upward spurt in November, the course of the crude market throughout the year is made perfectly clear by the statistics. At the opening of the year, in anticipation of a material increase in the demand for fuel oil (residuum) and no increase in the crude production appearing, the advance in the price of crude was consistent, the more so because of the advance in the price of refined for both home and foreign consumption. With the month of June, however, came a material increase in the production of crude, which culminated in the enormous daily average of over 243,000 barrels in the month of July; consequently, the price of crude commenced declining in June and continued steadily upon its downward course till October, when it dropped more rapidly, owing (1) to the fact that the Volga navigation closed for the winter, and (2) because the increased shipments of August and September to Batum had resulted in a heavy accumulation of stocks at the latter place, and the price of refined fell materially. The closing of the Volga necessitated holding residuum for at least five months, the bulk of that product finding its outlet via Caspian Sea and the Volga, and, as the year's shipments had not fully realized the anticipations of the merchants as to the increase in demand, and, unlike the preceding year, the production was not declining sufficiently to cause an anticipation of a shortage, the buyers of residuum were not at all pressing, the result being a rapid drop in the prices of both crude and residuum.

The spurt in November was caused by the shipments of illuminating oil to Batum falling off, owing to a congested state of traffic in the railway yards at Baku (produced by the opening for traffic of the new railway to Petrovsk, which connects Baku with the railway system of Russia proper and resulted in an immense increase in the railway business of that place) preventing the railway from supplying tank cars to the refiners promptly. As stated in a previous report, the Baku-Batum Railway has never been able to carry all the refined oil offered it, so that a committee has been established to divide fairly among the refiners all the tank cars that it is possible for the railway to transport, upon the basis of the stocks on hand at refineries. In the months of August and September, this committee allotted over eleven thousand tank cars each month, so that when the allotment fell to seven or eight thousand cars in October, the demand for transportation capacity was so much greater than the railway could supply that the price of refined f. o. b. tank cars advanced rapidly from not much over 15 kopecks (7.73 cents) per pood to 30 kopecks per pood (15.45 cents per 36.112

pounds) in November. This advance was really an advance in the premium on tank-car capacity, for refined for Caspian Sea shipment did not go higher than 22 kopecks (11.33 cents) per pood and made the refined business for those having tank cars exceedingly profitable, and naturally increased the demand for crude, as the refiners sought to create as large stocks as possible in order to get a larger share of Batum transportation. Of course, this state of affairs was not of long duration, and when the railway resumed very nearly its normal capacity by the middle of December, the tank-car premium dropped from 15 kopecks to 5 kopecks (7.7 cents to 2.57 cents), and the price of crude sympathized with the decline.

SEARCHING FOR NEW TERRITORY.

Notwithstanding there has been considerable drilling all around the Baku fields in the search for new territory, nothing was developed in the past year. The Kiliazi territory, which is situated about 30 miles northwest of Baku on the shores of the Caspian Sea, which was mentioned in my last year's report as a possible new field, has not yet produced sufficient oil to confirm its title to that distinction. The first well drilled, which was reported a year ago to be producing 120 barrels per day from a depth of 875 feet, has produced some oil at intervals since, but has been undergoing cleaning out or repairs of some other nature most of the time. Two more wells have been drilled, one of which is said to be a producer; but up to the present time, Kiliazi can not be included in the Russian oil-producing territory.

REFINING.

The results of refining in 1899 showed very clearly that the principal object of the refiner changed from residuum in the beginning of the year to illuminating oil in the last four months of the year, the yield from the crude the first eight months being 24.8 per cent refined and 56.59 per cent residuum, while in the last four months it was 31.78 per cent refined and 48.35 per cent residuum. This state of affairs was in a measure reversed in 1900, as the yield the first three months of the year was 29.17 per cent refined and 52.5 per cent residuum, while the average for the year was 25.52 per cent refined and 57.08 per cent residuum, against an average for the previous year of 26.48 per cent refined and 54.75 per cent residuum. This change was, of course, due to the decline in the price of refined.

The following figures show the average monthly prices at Baku for refined oil for Batum and Caspian Sea shipment, and residuum, in both kopecks per pood and cents per gallon, together with the approximate cost of refined upon the basis of the average monthly

crude and residuum prices and a yield from the crude of 28.5 per cent refined and 57 per cent residuum:

Month.	Refined oil.						Residuum.	
	Esti- mated cost of a pood.	Batum shipment.		Caspian shipment.				
		Per pood.	Per gal- lon.	Per pood.	Per gal- lon.		Per pood.	Per gal- lon.
	<i>Kopecks.</i>	<i>Kopecks.</i>	<i>Cents.</i>	<i>Kopecks.</i>	<i>Cents.</i>		<i>Kopecks.</i>	<i>Cents.</i>
January.....	29.34	50.5	4.73	31.5	2.95	16	1.59	
February.....	28.75	47	4.4	29.5	2.76	16.5	1.55	
March.....	28.50	51.5	4.8	31.5	2.95	17.5	1.65	
April.....	30.25	38	3.66	29	2.71	17.5	1.65	
May.....	31.2	33.2	3.11	28	2.62	18.1	1.7	
June.....	29.6	30.2	2.83	27.2	2.55	18.7	1.77	
July.....	27.5	28.5	2.67	22	2.06	18	1.68	
August.....	26.3	28.5	2.67			17.7	1.66	
September.....	20.5	20	1.87	18	1.68	18	1.68	
October.....	17.85	15.5	1.45	16	1.50	13.2	1.23	
November.....	19.35	27.5	2.55	22	2.06	14.2	1.31	
December.....	19	23	2.15	17	1.59	13.5	1.26	

The average prices since January 1 have been about 20.5 kopecks per pood (1.92 cents per gallon) for refined for Batum shipment, 13 kopecks per pood (1.22 cents per gallon) for refined for Caspian shipment, and 13.5 kopecks (7.35 cents) per pood for residuum.

I have in previous reports, and partially in this, explained the cause of the difference in price of refined oil for Batum shipment and Caspian Sea shipment, but will again endeavor to make it a trifle clearer here: Refined for Batum shipment means free on board tank cars at Baku, and, as I have hereinbefore stated, the railway transportation capacity has been so limited that, it being impossible to supply all the cars asked for, a committee was formed for the equitable distribution among the refiners of the number of cars that the railway authorities stated they could supply monthly; the result of this arrangement has been that tank-car capacity has for some years commanded a premium, the amount of which is indicated by the difference in price of refined for Batum and Caspian shipment, such difference being simply premium on transportation capacity. As the shipping facilities by way of the Caspian Sea are unlimited, or at least their limit has never been reached, there is never a premium on that sort of transportation, although sea freight occasionally fluctuates a trifle; so that the price of refined in tank at Baku or on board vessels on the Caspian Sea is always much lower than on cars, except in the rare intervals when the demand for refined for Batum falls to the capacity of the railway. One of those intervals occurred in the past year. In the month of October,

there was such an accumulation of stocks at Batum that exporters could not store any more refined and were compelled to stop buying at Baku, the result being, as shown by the foregoing figures, a drop in the price of refined on cars to below that of refined on vessels; but then came the congestion in the Baku Railway yards which reduced shipments, and the premium on tank-car capacity again appeared and advanced to about 15 kopecks (7.72 cents) per pood, as refined on cars was sold in the month of November as high as 30 kopecks (15.45 cents) per pood, although the average price for that month was only 27.5 kopecks per pood (14.16 cents per 36.112 pounds).

From the average prices shown, it will be seen that the refining business was very profitable during the first five months of 1900, as there was a very handsome profit upon all refined which could be delivered to Batum and practically no loss on that sold for Caspian shipment; as the shipments of refined were about equally divided between the two routes, the actual profit of the refiner was about half as much as is shown upon Batum shipment when there was no profit in the Caspian shipment, and in the first three months of the year must have been about 10 kopecks (5.15 cents) per pood. The result of this was the starting of many refineries which had been idle for months and the erection of additional refining capacity. The drop in prices the last half of the year, however, changed all this, and some time in October the papers stated that there were only about twenty refiners working, and they were those who had their own crude production; that it was impossible for a refiner to run his works upon crude bought at ruling prices, without great loss. The spurt in November started up many of the refineries again, and, judging from the statistics at hand, the output of refined from the refineries has since been about normal, notwithstanding there must still be a heavy loss in refined at the prices quoted for Caspian shipment, while Batum shipment sells at just about cost. However, there is very little refined shipped by the Caspian at this season, and, as there is plenty of tankage at Baku, it is presumable that refiners are not running for refined for immediate sale, but to hold until the opening of Volga navigation, in anticipation of a sufficient advance in price to make the business profitable.

HOME CONSUMPTION OF ILLUMINATING OIL.

That, with the cheapest illuminant known and fairly good and steadily increasing distributing facilities, Russia should consume the smallest amount of refined petroleum per capita of the civilized nations of the earth, seems incredible, but I feel sure that it is a fact.

I have no means of ascertaining the actual per capita consumption, but from all statistics I have been able to gather, I feel sure that the total annual consumption of refined in Russia never exceeded 200,000,000 gallons up to 1900, and with a population of 120,000,000 that is less than 2 gallons per capita per annum. This state of affairs becomes quite easily understood, however, when it is explained that every pood (36.112 pounds) of refined oil consumed in Russia pays a Government tax of 60 kopecks—*i. e.*, about 5.6 cents per gallon; thus, notwithstanding a gallon of refined oil may be bought to-day at Baku for 1.22 cents and delivered to almost any part of Russia for as much more, the consumer must pay, in addition to the profit of the numerous dealers through whose hands it passes, the 5.6 cents per gallon tax. For instance, in the populous districts which are supplied with fuel oil by way of the Caspian Sea and Volga River, where the cost of transportation can not be more than 1 cent a gallon, the small consumer must pay not less than 10 cents a gallon for his refined.

From such figures as I have been able to obtain, I feel sure that the increase in the Russian consumption of refined oil in the six years prior to 1899 did not amount to 25 per cent; and I do not know that there was any material increase in 1900, but the shipments for Russian consumption in that year were about 257,000,000 gallons, an increase over 1899 of nearly 60,000,000 gallons—a greater increase, in fact, than there was in 1899 over 1894. It is exceedingly probable that much of this increase was exported via the Baltic ports and the German frontier, but I have no way at present of ascertaining the facts of the matter.

A committee of the petroleum trade made last year what was said to be a very thorough investigation of the conditions existing in the Russian rural districts, with a view to forming an intelligent idea of the possibilities of increasing the home consumption of refined oil, with, it is reported in the press, the most appalling discoveries as to the poverty of the peasantry as far as an illuminant was concerned. The report of this committee made quite a sensation for a time, but I have not been able to secure a copy of it. The gist of it was that practically there was no refined consumed in Russia; that the price in all but the railway towns was, for the majority of the population, prohibitory. This is confirmed by the small per capita consumption.

A great change might be wrought by the abolition of the 60 kopecks per pood (30.91 cents per 36.112 pounds) tax. With her immense population and long winters of short days, were the tax abolished, Russia might easily consume more refined than the present known territory could supply.

RESIDUUM.

The importance to the Baku trade of the demand for residuum is made apparent by the prices last year, as the cost of refined oil depends not upon the cost of crude oil alone, but upon the prices of the crude and residuum; the higher the prices realized for residuum the lower the cost of refined.

The increase in the output of residuum from Baku in 1899 over 1898 was very small, and its insignificance was accounted for by the supposition that much of the 1898 output had not been consumed in that year, but had been carried over to and consumed in 1899, helping to supply the natural increase in demand. Upon this supposition was based the opinion that the stocks of residuum in Russia were less at the end of 1899 than twelve months previous, and that the output in 1900 would clearly indicate the consumption. The statistics show that the output of residuum by the Caspian Sea last year was about 93,000,000 gallons more than in 1899, and deducting from this the amount exported from Novorossisk and adding the consumption of the Caucasus, which is supplied by rail, will give an increase in the Russian consumption of about 90,000,000 gallons—*i. e.*, of Baku residuum, as the output of the Grosni field is also almost wholly consumed in Russia. For many reasons, no increase in the demand for residuum is expected this year, the principal of which is the anticipated increase in the production of coal from the mines with which residuum has been competing. A meeting of mine owners was held last autumn at Kharkof, and it was there decided that they would just about double the 1900 output of coal this year, and it seems to be believed that they can do it. If the coal output is increased materially, prices must decline; and the chances seem that both coal and residuum will be much cheaper, with a possible reduction in the demand for the latter. On January 1, 1901, there were in stock at Baku about 61,000,000 poods (305,000,000 gallons) of residuum, and at the natural rate of output on the basis of crude production, that stock will be increased to probably 130,000,000 poods (650,000,000 gallons) by April 1 (the opening of Volga navigation). With no possibility of the demand reaching more than 260,000,000 poods (1,300,000,000 gallons) for the year, they will open the season with half the necessary quantity in stock; and even with no increase in crude production, they will produce probably 30,000,000 poods (150,000,000 gallons) residuum per month, so that it is very probable that before the navigation season is much more than half over, they will have the year's demand supplied. If this proves to be the case, nothing but a big decline in the price of not only residuum, but crude also, is to be expected.

STOCKS OF ALL PRODUCTS AT BAKU.

With the exception of crude, the stocks of all products at Baku on January 1, 1901, were much greater than at the same time last year, and, as the crude production is considerably larger than last year, there is no doubt whatever that the opening of the Volga navigation season will see the largest stocks at Baku ever known, even should the crude production not increase. Under those circumstances, it is difficult to understand the apparent very general anticipation of higher prices in the spring which seems to prevail at Baku. But, as before stated, sanguine dispositions seem to prevail in this trade.

RAILWAY AND PIPE-LINE TRANSPORTATION.

The long-awaited Mikhailovo-Batum pipe line commenced working in July, 1900, and for a time materially increased the transportation capacity of the railway to Batum. That the increase in transportation was only temporary was not the fault of the pipe line, but of the railway, as has been previously explained. It has been noted in former reports that this pipe line—which commences at Mikhailovo, a railway station about 143 miles east of Batum, and terminates at Batum—was constructed by the railway company for the purpose of assisting in the transportation of refined oil, and consequently of the other products also, by carrying refined over the most difficult part of the railway, as the grades on the railway over the mountains near Mikhailovo are so heavy that the railway could not carry much more than half the amount over them that it could bring from Baku to Mikhailovo. The pipe line is for refined only, and that product is now discharged from tank cars at Mikhailovo into tanks and piped to Batum. Up to the present, the pipe line has never been worked to its full capacity, because of the inability of the railway to deliver sufficient refined at Mikhailovo to keep it going; but that it has materially added to the transportation is evidenced by the fact that while the average number of tank cars shipped from Baku monthly the first seven months in the year 1900 was only 8,827, the number shipped in August alone was 11,062 and in September 11,136. Owing to the trouble at Baku, previously mentioned in this report, the shipments fell to 8,198 cars in October and 8,776 in November, which is the latest information at hand. These figures show the increase in transportation from the use of the pipe line to have been about 25 per cent; but as the pipe line has delivered as much as 250,000 poods in a day at Batum, there is no doubt that the railway can now deliver to Batum all the refined it can transport to Mikhailovo, which is entirely dependent upon the number of tank cars it can put into service. A year ago

it was not difficult to form an accurate idea of the number of tank cars this railway could put into service, because at that time there was no connection between the Baku-Batum Railway and the other railways of Russia, so that the Baku-Batum Railway was limited absolutely to its own tank cars; now, however, it is connected with the Russian railway system, and, as there are many tank cars in use all over Russia, it is possible that the Baku-Batum Railway may greatly augment its capacity by borrowing tank cars from other roads. If sufficient refined to keep the pipe line working fully can be delivered at Mikhailovo, there can be no doubt that 250,000 poods, or 1,250,000 gallons, can be delivered to Batum daily, which means over 400,000,000 gallons annually, or an increase of over 30 per cent over last year. The amount of refined that can be delivered at Batum is of great importance to the American trade, as, with the exception of 25,000,000 gallons shipped to Odessa annually, it all competes with American oil.

The rate of freight for refined oil by rail and pipe line is the same as by all rail—*i. e.*, 16 kopecks per pood (1.65 cents per gallon). The loss by pipe and rail, owing no doubt to the transshipment at Mikhailovo, is a trifle greater than by all rail. At present, the railway takes 2 per cent to cover the loss, delivering to shippers at Batum that much less than it receives at Baku; but every four months the actual loss is ascertained, and any difference in favor of shippers is returned to them. Up to date, only one four-month period has expired since the opening of the pipe line, and the actual loss in that period was ascertained to have been only 0.8 per cent; consequently the shippers received the difference between that and the 2 per cent—*i. e.*, 1.2 per cent. At the end of three four-month periods—*i. e.*, two more—the average for the whole will be taken as the arbitrary loss. The actual loss by all rail is said to be a trifle under one-half of 1 per cent.

One result of the recent congestion in the railway yards at Baku is the appropriation of 200,000 rubles (\$103,000) by the railway company for the construction of a pipe line for refined oil from the Baku refineries to a point on the railway about 18 miles this side of Baku, where sufficient land is available to give all the yard facilities necessary; the refined to be piped to this new station and there loaded into tank cars. The completion of this pipe line is promised for this year, and, while there seems to be no reason why 18 miles of pipe line can not be constructed in a year (it could be done in the United States easily in a couple of months), when it is considered that it took four years to construct the 143 miles from Mikhailovo to Batum, one can not be perfectly sure that this new line will be in working order by the end of the year.

Another railway was opened fully for traffic in 1900; that is the branch of the Vladikavkas line connecting Baku with the main Russian railway system at Petrovsk. This road affords the Baku trade an all-rail route to Novorossisk and the German frontier, but the freight rates at present are higher than sea shipment to Petrovsk and thence by rail to Novorossisk, so that the all-rail route is not likely to be much used for that shipment. Whether or not the freight rates will be so reduced in the future as to allow the rail route to successfully compete with the sea-and-rail route is not yet known; but the newspapers have very recently stated that the Government had made a very low freight rate by rail to the German frontier, where it is met by reduced rates on the German railways, in order to induce export to western Germany by rail; so that it seems possible that further reductions may be made, providing the existing rates prove inadequate. But the distance from Baku to the German frontier is so great that it would seem that a sufficiently low rate of freight to induce export by rail to Germany must result in a loss to the carriers and be of the nature of a subsidy; it does not seem reasonable that the Russian Government would maintain a prohibitory tax on illuminating oil for its own consumers and then subsidize export.

EXPORT OF PETROLEUM PRODUCTS VIA NOVOROSSISK.

As the freight rate from Baku to Novorossisk on refined oil is between 4 and 5 kopecks per pood (about half a cent per gallon) more than from Baku to Batum, with no premium on tank-car capacity on the latter route, export via Novorossisk would be usually impossible. At times, however, the price which can be obtained for refined for export is sufficient to allow shippers to pay the difference in transport and still reap a good profit. The difference in the cost of transportation is due to the distance; from Baku to Batum is 560 miles, while from Baku to Novorossisk by all rail it is 869 miles; via sea to Petrovsk and thence by rail the distance is still greater, but the sea transport reduces the cost of the whole several kopecks per pood. By this route, refined is shipped from Baku in tank steamers, discharged in tanks at Petrovsk, and then carried in tank cars to Novorossisk. This route first came into use in 1895 upon the occasion of the Baku-Batum Railway being so badly damaged by floods that communication to Batum was absolutely cut off for two months, and full freight traffic was not resumed until June, 1896, the flood occurring early in November, 1895. When the Baku-Batum Railway resumed its full transportation capacity in 1896, the Novorossisk route was practically abandoned until in 1898, when

tank : premium advanced to such an extent that the Novorossisk route again became possible, and has been used more or less ever since, shipments, however, naturally falling off last year when the tank-car premium was temporarily wiped out. At present, the Novorossisk route is considerably cheaper than the Batum route, because of the difference in the price of Batum and Caspian Sea shipment, which is not less than $7\frac{1}{2}$ kopecks per pood (0.77 cent per gallon), against a difference in transportation of certainly not more than 5 kopecks per pood (half a cent per gallon). But with one exception, all the tankage at Novorossisk belongs to the Vladikavkas Railway, which either leases it to shippers for a term or charges about half a kopeck per pood (0.26 cent per 36.112 pounds) per month for storage. It is said that the larger shippers have taken so much of the storage that the road can not handle refined for new shippers; consequently this route is not available for all at present.

GROSNI FIELD.

This field, although improving in its output, has not yet assumed such proportions as to be of much importance in the export trade, its production going almost wholly into home consumption.

The following figures show the crude production of, and shipments from, the Grosni field by months for the year 1900:

Month.	Production.	Average per day.	Shipments.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	201,780	6,503	188,855
February	185,652	6,630	144,333
March	222,714	7,184	269,643
April	301,645	10,055	224,786
May	353,076	11,390	378,684
June	290,076	9,669	237,238
July	208,428	9,620	364,156
August	306,696	9,893	307,115
September	336,222	11,207	320,155
October	412,884	13,319	334,920
November and December	749,751	12,290	570,384
Total	3,658,924	10,244	3,340,469
Total in 1899	2,966,059	7,962	2,626,415
Increase	752,865	2,282	714,054

* Barrels of 42 gallons.

There were several very good wells struck in this field last year, the largest of which was accredited with a daily production of about 18,000 barrels for some weeks; and there was much more drilling

done than in 1899, as will be seen from the following figures for the number of wells in the field at the close of 1899 and 1900:

Description.	1899.	1900.
Wells producing.....	41	93
Wells idle.....	12	17
Wells drilling.....	38	25
Drilling deeper and repairing.....	0	7
Derricks up ready for drilling.....	14	12

As the daily production at the end of the year was 5,699 barrels more than at the beginning, the 52 wells completed during the year evidently added about 100 barrels per day each to the production. From the fact that there were less wells drilling at the close of the year than at the close of 1899, the inference is that there will not be as great an increase in the production this year as there was last.

Some "wildcatting" continues in the vicinity of the Grosni field, but at one place where several wells were drilled and considerable money expended, operations were stopped and the experiment abandoned.

From a trade paper, I get the following figures for the output of illuminating oil and benzine from the three Grosni refineries in the years 1899 and 1900:

Year.	Benzine.	Refined.
	<i>Gallons.</i>	<i>Gallons.</i>
1899	655,000	9,000,610
1900	1,416,045	7,919,770

The benzine is 0.713 specific gravity—a trifle heavier than the American standard. The three refiners seem to have obtained different results in 1899, as one obtained 1.04 per cent benzine and 9.35 per cent refined from the crude, another 2.53 per cent benzine and 16.53 per cent refined, while the third got only 11.95 per cent refined; but I have no doubt that there was some difference in the quality of the refined obtained.

Full statistics for 1900 are annexed.

JAMES C. CHAMBERS,

BATUM, *February 28, 1901.*

Consul.

STATISTICAL TABLES COVERING THE BATUM OIL FIELDS.

Number of wells producing, number of flowing wells, and number of wells started drilling.

Month.	Balakhani-Sabunchi.		Romani.		Bibi-Eibat.		Total.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
<i>Wells producing.</i>								
January.....	776	977	96	115	4	59	914	1,151
February.....	786	976	96	118	41	62	923	1,156
March.....	799	1,012	97	119	46	61	942	1,192
April.....	807	1,019	106	116	45	60	958	1,195
May.....	825	1,047	112	124	46	66	986	1,237
June.....	832	1,070	114	128	45	66	991	1,264
July.....	856	1,086	113	130	46	79	1,015	1,295
August.....	876	1,088	114	136	48	89	1,038	1,313
September.....	905	1,094	115	144	47	82	1,067	1,320
October.....	915	1,087	118	144	51	86	1,084	1,327
November.....	958	1,110	121	142	56	95	1,135	1,347
December.....	951	1,122	122	144	55	93	1,128	1,350
Average for the year.....							1,015	1,263
<i>Flowing wells.</i>								
January.....	8		3	1	2	3	13	4
February.....	4	1	1	1	3	5	8	7
March.....	4	1	5	2	2	3	11	6
April.....	2	1	5	1	2	4	9	6
May.....	1	1	4	1	2	4	7	6
June.....	2	2	3	3	2	5	7	10
July.....	1		2	3	3	5	6	8
August.....			2	4	1	4	3	8
September.....		1	1	3	2	3	3	7
October.....	1	1		3	1	4	2	8
November.....	3	2	2	1	1	4	6	7
December.....		2	1	1	1	4	2	7
Average for the year.....							6	7
<i>Wells started drilling.</i>								
January.....	49	35	3	2	1	7	53	44
February.....	55	27	5		1	8	61	35
March.....	46	41	7	1	1	1	54	43
April.....	52	29	4	4	1	6	57	39
May.....	34	25	7	2	2	22	43	49
June.....	32	39	6	6		7	38	52
July.....	28	19	8	4	9	8	45	31
August.....	33	21	5	4	17	7	55	32
September.....	43	36	3	1	5	15	51	52
October.....	19	19	13	6	14	5	46	30
November.....	41	26	4	8	6	4	51	38
December.....	34	22	0	5	1	1	44	28
Total.....	466	339	74	13	58	91	598	473

Wells completed, with average depths and average production.

Month.	Balakhani-Sabunchi.				Romani.				Bibi-Eibat.				Total			
	Wells.	Average depth.	Average production.	Wells.	Average depth.	Average production.	Wells.	Average depth.	Average production.	Wells.	Average depth.	Average production.	Wells.	Average depth.	Average production.	
1899.		<i>Fect.</i>	<i>Barrels.*</i>		<i>Fect.</i>	<i>Barrels.*</i>		<i>Fect.</i>	<i>Barrels.*</i>		<i>Fect.</i>	<i>Barrels.*</i>		<i>Fect.</i>	<i>Barrels.*</i>	
January	29	768	343	1	1,267	213	.....	.....	.....	30	813	339	.....	813	339	
February	26	973	272	2	1,240	433	1	1,254	534	29	1,008	187	.....	1,008	187	
March	17	939	252	1	1,596	255	1	1,043	4,879	19	980	496	.....	980	496	
April	12	680	102	2	1,421	340	1	747	1,059	15	1,030	251	.....	1,030	251	
May	35	808	108	5	1,225	230	.....	.....	.....	30	875	173	.....	875	173	
June	35	889	194	7	1,379	33	1	1,095	392	43	924	178	.....	924	178	
July	33	784	132	4	1,463	106	1	861	347	38	861	134	.....	861	134	
August	35	746	142	2	861	516	.....	.....	.....	37	753	167	.....	753	167	
September	24	889	106	3	1,631	290	1	1,368	4,551	28	957	274	.....	957	274	
October	36	938	159	2	1,008	406	.....	.....	.....	38	945	172	.....	945	172	
November	28	812	163	2	1,554	135	1	1,820	146	29	901	160	.....	901	160	
December	33	856	156	1	777	123	.....	.....	.....	34	889	155	.....	889	155	
Year	331	862	170	32	1,349	201	7	1,308	1,791	379	911	202	.....	911	202	
1900.																
January	31	666	313	.....	.....	.....	1	.....	.....	32	985	353	.....	985	353	
February	20	921	126	2	1,006	103	1	693	242	23	926	120	.....	926	120	
March	18	868	926	3	1,292	212	4	679	373	25	875	750	.....	875	750	
April	28	1,001	165	4	1,358	279	3	798	292	35	1,022	189	.....	1,022	189	
May	39	924	283	2	1,337	91	.....	.....	.....	41	931	199	.....	931	199	
June	32	987	180	5	1,449	4,739	1	1,554	189	38	1,064	970	.....	1,064	970	
July	29	896	66	10	1,495	249	8	895	308	47	980	180	.....	980	180	
August	32	920	100	6	1,372	209	3	952	202	41	983	123	.....	983	123	
September	35	985	369	3	1,295	203	8	845	390	46	973	351	.....	973	351	
October	24	866	124	5	1,435	537	5	917	562	34	973	249	.....	973	249	
November	36	1,018	233	8	1,428	221	20	1,085	277	54	1,091	171	.....	1,091	171	
December	17	959	248	7	1,337	442	8	1,176	590	32	1,085	369	.....	1,085	369	
Year	241	949	231	55	1,350	688	52	961	385	448	999	304	.....	999	304	

* Barrels of 42 gallons.

Total number of wells in the Baku oil fields on December 31, 1899 and 1900.

Condition of wells.	Balakhani-Sabunchi.		Romani.		Bibi-Eibat.		Total.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
Producing	907	1,085	118	140	56	81	1,081	1,306
Finished drilling, but not yet producing	47	27	3	3	.....	12	50	42
Drilling	438	439	79	95	62	83	579	608
Drilling deeper.....	50	61	3	13	2	7	55	83
Cleaning out and in state of repair	94	104	14	11	1	8	109	123
Standing idle.....	363	522	28	45	7	19	398	586
Total.....	1,899	2,231	245	307	128	210	2,272	2,718
Rigs up ready to start drilling....	109	93	3	6	32	16	144	115

Gross production of the Baku oil fields in 1899 and 1900.

Month.	Balakhani-Sabunchi.		Romani.	
	1899.	1900.	1899.	1900.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	3,703,886	3,499,338	900,947	767,354
February	3,856,516	3,452,392	797,801	707,504
March	3,781,942	3,998,609	1,000,362	834,659
April	3,073,666	3,604,371	1,316,391	738,291
May	3,734,477	3,782,579	1,397,345	990,964
June	3,169,138	3,674,962	1,153,999	1,570,662
July	3,171,152	3,785,253	1,083,966	2,352,886
August	3,254,527	3,837,830	1,029,308	1,597,348
September	3,229,456	3,858,146	855,935	1,213,033
October.....	3,627,334	3,793,469	765,701	1,027,211
November	3,499,511	3,917,370	767,920	1,020,131
December	3,387,797	3,868,533	762,026	946,943
Total	41,188,802	45,154,852	11,831,692	13,768,476

Month.	Bibi-Eibat.		Total.	
	1899.	1900.	1899.	1900.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	629,005	912,388	5,233,838	5,179,080
February	538,131	890,934	5,192,448	5,059,920
March	830,075	851,879	5,612,379	5,685,147
April	805,846	828,111	5,195,303	5,170,173
May	640,002	1,031,761	5,782,824	5,805,394
June	683,082	1,095,969	5,006,210	6,340,993
July	693,416	1,411,666	5,218,534	7,549,805
August	836,849	1,272,852	5,120,684	6,710,030
September	955,314	1,030,224	5,040,705	6,101,403
October.....	973,676	1,171,836	5,366,711	5,992,516
November	891,319	1,317,917	5,159,750	6,335,418
December	944,182	1,281,878	5,094,005	6,097,354
Total	9,700,897	13,067,415	63,021,391	72,018,741

* Barrels of 42 gallons.

Gross production (flowing wells) of Baku oil fields in 1899 and 1900.

Month.	Balakhani-Sabunchi.		Romani.	
	1899.	1900.	1899.	1900.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	785,760	.....	174,480	64,440
February	1,236,480	62,880	68,280	57,000
March	683,760	434,280	283,680	117,480
April	208,560	27,000	483,120	41,280
May	676,080	91,320	645,000	2,652
June	157,440	51,000	410,520	741,000
July	7,800	.....	350,400	1,477,200
August .....	.....	.....	241,320	633,000
September .....	.....	193,560	97,680	437,100
October	201,840	7,200	.....	267,240
November	241,680	347,760	74,280	215,520
December .....	.....	122,520	4,800	57,360
Total	4,289,400	1,337,520	2,833,560	4,111,332

Month.	Bibi-Eibat.		Total.	
	1899.	1900.	1899.	1900.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January	240,840	282,360	1,201,080	346,800
February	197,040	351,960	1,591,800	471,840
March	274,800	237,840	1,242,240	789,600
April	341,280	136,440	1,032,960	204,720
May	125,160	261,060	1,446,240	355,032
June	160,560	396,060	728,520	1,188,096
July	265,200	468,840	623,400	1,946,040
August	234,360	290,640	475,680	973,640
September	205,080	203,880	302,760	834,600
October	165,720	192,360	457,560	466,800
November	132,480	176,760	448,440	740,040
December	187,200	195,480	192,000	375,360
Total	2,529,720	3,193,716	9,652,680	8,642,568

* Barrels of 42 gallons.

Average daily production of Baku oil fields in 1899 and 1900.

Month.	Flowing wells.		Pumping wells.	
	1899.	1900.	1899.	1900.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January.....	38,744	11,252	130,075	155,815
February.....	53,636	15,270	131,808	157,900
March.....	40,972	25,471	140,973	157,021
April.....	34,432	6,824	138,745	163,535
May.....	46,653	11,453	136,599	175,815
June.....	24,284	39,603	142,589	171,963
July.....	20,103	62,775	148,237	180,767
August.....	15,344	29,795	149,839	186,658
September.....	10,092	27,820	157,921	175,560
October.....	14,728	15,560	158,392	180,973
November.....	14,948	24,668	157,044	186,512
December.....	6,193	12,168	158,129	184,580
Year.....	26,415	23,768	146,216	173,155

Month.	Total.		Stocks at wells at end of month.	
	1899.	1900.	1899.	1900.
	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January.....	168,817	167,067	809,740	1,031,470
February.....	185,144	174,170	1,018,898	916,532
March.....	181,045	183,392	759,351	780,971
April.....	173,177	172,359	769,334	775,077
May.....	183,252	187,268	802,190	773,810
June.....	166,873	211,366	747,872	834,604
July.....	168,340	243,542	893,651	948,450
August.....	165,183	216,453	688,413	958,664
September.....	168,023	203,380	643,592	827,115
October.....	173,120	196,533	640,599	984,586
November.....	171,992	211,180	684,827	1,060,109
December.....	164,322	196,688	858,238	1,088,342
Year.....	172,661	197,284		

* Barrels of 42 gallons.

Crude (net effective) production of Baku oil fields in 1899 and 1900.

Month.	Gross production.	Loss and fuel at wells.	Net production.	Daily average.
1899.	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
January.....	5,233,838	555,140	4,678,698	159,925
February.....	5,192,448	533,839	4,658,609	166,379
March.....	5,612,379	629,971	4,982,408	160,723
April.....	5,195,393	580,691	4,614,702	153,820
May.....	5,780,824	508,847	5,271,977	179,062
June.....	5,006,210	511,773	4,494,437	149,814
July.....	5,218,534	546,168	4,672,366	159,771
August.....	5,120,684	568,392	4,552,292	146,843
September.....	5,040,795	580,482	4,460,313	148,687
October.....	5,366,711	649,036	4,717,675	152,183
November.....	5,159,750	617,038	4,542,712	151,424
December.....	5,094,005	602,942	4,491,063	144,840
Year.....	63,021,391	6,883,699	56,137,692	153,774
1900.				
January.....	5,179,080	654,555	4,524,525	145,920
February.....	5,050,430	851,810	4,199,110	144,800
March.....	5,685,147	622,484	5,062,663	163,312
April.....	5,170,773	528,310	4,642,463	154,749
May.....	5,895,304	567,845	5,327,459	168,950
June.....	6,340,793	526,683	5,814,310	193,810
July.....	7,549,805	771,636	6,778,169	218,651
August.....	6,710,030	706,671	6,003,359	193,657
September.....	6,101,403	684,779	5,416,624	180,554
October.....	5,992,516	677,276	5,315,240	171,427
November.....	6,335,418	890,395	5,445,023	182,201
December.....	6,097,354	740,801	5,356,553	172,792
Year.....	71,018,743	8,202,245	63,816,498	174,839

* Barrels of 42 gallons.

Stocks of all products at Baku.

Product.	January 1—		Increase.	Decrease.
	1900.	1901.		
Crude:	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>	<i>Barrels.*</i>
At wells.....	1,088,342	858,238	230,104	
At refineries.....	4,778,881	4,750,359		271,478
Total crude.....	5,867,223	5,608,597		41,374
Illuminating.....	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
Lubricating.....	110,166,410	92,600,025	17,566,385	
Residuum.....	13,199,655	9,899,485	4,199,170	
	301,550,745	189,541,720	111,009,025	

* Barrels of 42 gallons.

Output of all products from Baku in the years 1899 and 1900.

Month.	Illuminating oil.		Lubricating oil.		Residuum.		Crude.		Total.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
<i>By rail.</i>										
January	15,978,000	34,235,500	4,195,000	4,385,000	3,310,000	3,170,000	4,690,000	3,915,000	34,045,000	35,915,000
February	15,855,000	33,475,000	3,640,000	4,390,000	2,510,000	2,135,000	4,280,000	3,405,000	35,470,000	35,470,000
March	29,270,000	27,540,000	3,755,000	4,005,000	3,090,000	2,420,000	5,960,000	6,160,000	41,715,000	40,125,000
April	25,350,000	27,145,000	3,455,000	3,455,000	2,405,000	2,180,000	4,675,000	4,530,000	33,690,000	37,420,000
May	24,215,000	20,530,000	3,445,000	2,715,000	1,680,000	3,595,000	4,390,000	3,595,000	33,670,000	28,205,000
June	26,685,000	25,005,000	3,685,000	3,785,000	2,075,000	1,695,000	4,305,000	4,060,000	37,680,000	35,715,000
July	25,505,000	20,435,000	3,245,000	3,480,000	1,575,000	1,465,000	4,720,000	4,745,000	35,045,000	39,125,000
August	26,755,000	28,595,000	3,385,000	5,095,000	2,605,000	2,590,000	4,905,000	5,100,000	36,690,000	41,350,000
September	27,800,000	31,540,000	4,035,000	4,060,000	1,840,000	2,120,000	4,205,000	4,670,000	37,880,000	44,390,000
October	26,510,000	23,880,000	3,205,000	3,405,000	895,000	1,105,000	4,655,000	4,525,000	35,265,000	32,605,000
November	18,990,000	25,390,000	2,705,000	4,405,000	1,225,000	1,095,000	3,860,000	4,685,000	26,740,000	35,575,000
December	17,320,000	21,875,000	3,535,000	5,310,000	1,615,000	985,000	2,720,000	6,015,000	25,490,000	37,185,000
Total	370,445,000	311,025,000	42,015,000	47,730,000	21,305,000	22,675,000	52,695,000	57,580,000	416,460,000	439,010,000
<i>By sea.</i>										
January	4,465,000	12,070,000	30,000	220,000	6,735,000	11,735,000	205,000	100,000	12,435,000	25,025,000
February	3,065,000	15,845,000	390,000	215,000	6,830,000	11,635,000	545,000	1,770,000	10,830,000	20,455,000
March	17,040,000	16,995,000	1,165,000	665,000	133,105,000	35,730,000	4,570,000	6,585,000	155,880,000	50,575,000
April	20,680,000	41,120,000	1,700,000	3,615,000	157,810,000	182,015,000	10,730,000	13,225,000	190,290,000	238,975,000
May	22,625,000	31,310,000	2,535,000	2,485,000	174,085,000	184,820,000	11,995,000	18,105,000	211,150,000	236,720,000
June	24,275,000	35,805,000	1,340,000	2,675,000	167,400,000	184,530,000	10,090,000	16,390,000	199,530,000	239,450,000
July	26,145,000	30,395,000	2,255,000	2,250,000	193,885,000	188,060,000	9,060,000	22,275,000	205,720,000	249,830,000
August	28,960,000	35,775,000	2,375,000	2,535,000	199,415,000	169,175,000	10,370,000	19,370,000	191,140,000	256,875,000
September	27,240,000	31,380,000	1,610,000	1,990,000	135,445,000	174,065,000	6,440,000	16,830,000	170,735,000	224,465,000
October	20,035,000	27,865,000	1,235,000	2,055,000	89,420,000	114,620,000	2,070,000	19,395,000	113,780,000	103,035,000
November	10,430,000	9,745,000	365,000	1,690,000	6,095,000	6,095,000	1,265,000	30,000	11,760,000	15,980,000
December	9,460,000	11,070,000	40,000	410,000	9,240,000	5,615,000	545,000	285,000	19,265,000	17,380,000
Total	215,370,000	305,375,000	15,000,000	19,375,000	1,203,000,000	1,295,915,000	68,745,000	127,310,000	1,592,125,000	1,757,875,000

Output of all products from Baku in the years 1899 and 1900—Continued.

Month.	Illuminating oil.		Lubricating oil.		Residuum.		Crude.		Total.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
<i>Total.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
January	36,245,000	37,205,000	4,225,000	4,575,000	8,045,000	14,895,000	4,835,000	3,295,000	47,350,000	50,975,000
February	28,920,000	39,310,000	3,430,000	4,565,000	8,340,000	13,770,000	4,815,000	7,080,000	45,515,000	64,725,000
March	46,750,000	44,535,000	4,910,000	4,670,000	1,612,500.2	38,150,000	9,830,000	12,745,000	707,625,000	100,100,000
April	46,040,000	67,575,000	5,155,000	6,870,000	160,015,000	184,195,000	15,405,000	27,755,000	226,715,000	276,395,000
May	46,840,000	51,840,000	5,080,000	5,200,000	175,795,000	186,185,000	16,205,000	21,700,000	244,820,000	264,925,000
June	50,660,000	60,870,000	4,995,000	6,460,000	166,860,000	185,495,000	14,475,000	21,350,000	237,210,000	275,175,000
July	51,650,000	65,830,000	5,460,000	5,720,000	168,075,000	190,425,000	14,680,000	26,070,000	240,765,000	288,955,000
August	55,735,000	64,340,000	5,760,000	7,560,000	151,020,000	198,775,000	15,275,000	27,590,000	227,790,000	298,225,000
September	55,040,000	62,920,000	5,645,000	6,090,000	137,285,000	176,185,000	10,645,000	21,500,000	268,615,000	266,655,000
October	47,405,000	51,745,000	4,530,000	5,060,000	90,205,000	115,815,000	6,725,000	23,920,000	149,045,000	166,540,000
November	29,380,000	35,135,000	3,070,000	4,595,000	10,805,000	7,110,000	5,225,000	4,715,000	48,480,000	51,555,000
December	26,760,000	35,945,000	3,875,000	5,720,000	10,835,000	6,600,000	3,265,000	6,300,000	44,755,000	54,565,000
<i>Total</i>	515,835,000	617,250,000	57,015,000	67,055,000	1,224,305,000	1,318,590,000	121,430,000	194,800,000	1,918,585,000	2,197,785,000

Shipments of petroleum products from Batum in the years 1899 and 1900.

To—	Crude and residuum.		Lubricating.		Solar and distillate.		Refined.		Total.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
Austria-Hungary.....	456,300	293,590	3,598,125	2,002,795	8,974,800	1,714,325	3,657,000	1,657,165	4,810,600	10,657,165
Belgium.....	4,127,000	3,843,625	8,033,870	10,688,635	449,580	188,790	6,562,280	8,385,600	23,106,610	19,173,690
Bulgaria.....	4,850	10,450	70,050	49,050	.....	.....	1,260,255	1,844,680	1,904,180	1,904,180
Cochin China.....	.....	.....	.....	.....	.....	.....	5,401,000	1,161,600	5,401,000	1,161,600
China.....	96,100	10,050	167,650	166,100	.....	.....	28,790,250	13,360,350	13,360,350	13,360,350
Egypt.....	1,412,670	482,135	5,037,320	7,927,890	.....	.....	4,430,720	11,754,170	4,663,470	11,940,220
United Kingdom.....	1,814,095	1,315,705	8,514,075	9,318,970	9,674,655	18,357,275	55,032,875	48,161,165	72,057,520	74,928,465
France.....	991,440	1,000,080	10,579,140	9,920,875	15,074,440	8,148,130	1,242,575	4,066,285	26,043,185	23,143,150
Germany.....	.....	.....	.....	.....	97,405	36,000	12,551,790	15,615,810	24,210,865	26,662,765
India.....	1,948,040	1,982,270	350,000	464,850	.....	.....	48,063,085	35,158,680	48,063,085	32,158,680
Italy.....	.....	.....	.....	.....	.....	.....	5,819,600	1,835,345	8,118,540	4,282,405
Japan.....	.....	.....	.....	2,500	.....	.....	4,826,090	1,620,000	1,622,500	1,622,500
Java.....	.....	.....	.....	.....	.....	.....	8,672,320	7,864,030	8,672,320	7,864,030
Malta.....	.....	.....	.....	.....	.....	.....	1,369,775	1,312,275	1,369,775	1,312,275
Netherlands.....	.....	.....	103,500	317,200	.....	.....	2,124,095	2,228,405	2,228,405	317,200
Philippines.....	.....	.....	.....	.....	.....	.....	1,084,210	2,247,170	1,084,210	2,247,170
Portugal.....	.....	.....	.....	.....	.....	.....	3,310,190	2,565,650	3,310,190	2,565,650
Port Said, for orders.....	.....	.....	.....	.....	.....	.....	46,233,340	38,341,955	46,233,340	38,341,955
Roumania.....	1,300	2,050	87,550	93,200	.....	.....	474,175	493,760	508,025	499,010
Spain.....	238,260	.....	689,690	416,895	.....	.....	.....	.....	927,890	416,895
Turkey.....	56,750	39,350	37,300	77,250	.....	.....	10,786,240	35,516,945	10,880,290	35,633,545
Other countries.....	1,200	9,450	26,100	58,650	.....	.....	2,169,400	668,350	2,169,600	736,450
Total exports.....	11,078,845	8,688,675	37,295,210	42,404,700	34,270,990	27,030,155	261,609,975	230,721,145	347,255,020	399,144,765
Russia.....	687,075	143,630	1,441,195	1,110,795	51,800	38,550	20,297,815	23,517,555	20,297,815	24,810,530
Total shipments.....	11,765,920	9,132,305	38,736,375	43,515,595	34,322,790	27,068,705	281,907,790	254,238,700	370,342,875	333,955,295

NOTE.—"Port Said, for orders," is bulk shipment to the Far East, destination unknown at Batum. "Solar and distillate" means illuminating distillate to France and gas oil to the United Kingdom.

Shipments of petroleum products from Novorossisk in the years 1899 and 1900.

To—	Crude and residuum.		Lubricating.		Solar and distillate.		Refined.		Total.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
Austria-Hungary.....	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
Belgium.....	.....	1,369,020	.....	249,320	.....	1,112,770	1,664,565	1,112,770	1,664,565	1,112,770
France.....	263,560	1,272,155	450,375	3,017,700	5,514,030	3,776,220	2,208,945	1,112,770	2,208,945	5,387,560
United Kingdom.....	2,984,695	8,099,560	87,760	1,861,010	6,525,890	7,765,450	7,765,450	13,871,110	3,281,260	7,242,560
Germany.....	916,845	1,091,405	450,460	.....	.....	3,988,445	3,988,445	3,984,265	4,795,300	5,512,160
Italy.....	.....	1,365,090	.....	.....	.....	3,881,915	3,881,915	3,881,940	3,881,915	5,247,030
Malta.....	.....	.....	.....	.....	.....	598,485	598,485	598,485	598,485	598,485
Netherlands.....	.....	.....	.....	.....	.....	928,780	928,780	1,120,610	928,780	1,120,610
Portugal.....	.....	.....	.....	.....	.....	539,330	539,330	539,330	539,330	539,330
Port Said, for orders.....	.....	.....	.....	.....	.....	13,849,965	13,849,965	31,142,300	13,849,965	31,142,300
Spain.....	.....	1,103,495	46,640	.....	.....	31,142,300	31,142,300	31,142,300	31,142,300	240,135
Total exports.....	4,165,100	13,383,725	.....	1,296,585	12,030,920	60,007,030	33,887,145	60,007,030	42,925,955	85,727,260
Russia.....	4,036,000	216,730	.....	.....	.....	15,420,625	4,779,695	15,420,625	8,815,665	15,637,355
Total shipments.....	8,201,100	13,600,455	.....	1,296,585	12,030,920	75,427,655	38,666,790	75,427,655	51,741,590	101,364,615

NOTE.—“Port Said, for orders,” is bulk shipment to the Far East, destination unknown at Batum. “Solar and distillate” means illuminating distillate to France and gas oil to the United Kingdom.

MINERALS IN THE URAL MOUNTAINS.

Visitors to the School of Mines at St. Petersburg (which contains the most valuable stock of minerals and precious stones to be found in the world) can not but be impressed with the possibilities and resources of the Ural Mountains, which form the western border of Siberia. The specimens on exhibition comprise nuggets of gold worth \$20,000, and of platinum weighing 20 pounds; there are perfect crystals of green beryl weighing 5 pounds, a single mass of malachite weighing more than 2,000 pounds, as well as an enormously valuable collection of topazes, emeralds, chrysoberyls, garnets, amber, lapis lazuli, rock crystals, sapphires, jade, etc. Nevertheless, I can hear of no investments that have resulted from the many visits that mining engineers, principally Americans, paid to that territory during the past five years, except in developing the iron and platinum industries; with these exceptions, the methods used by miners are of the most primitive character.

Mining engineers say the gold-producing beds have been largely exhausted, and that the mining laws of Russia are so exacting that they can not recommend the organization of large companies to explore and work this territory. As there is no capital in Russia seeking investment in mining property, the Government's income from the same is decreasing. In 1891, the placer beds in the Ural district produced 704 poods (25,423 pounds) of gold, but the output has been gradually diminishing until during 1900 but 553 poods (19,970 pounds) were found.

The Russian authorities are anxious to develop their mining territory and have been for some time considering how to encourage the organization of foreign companies; they are proposing to modify their laws and offer more favorable terms.

The smelting of pig iron was commenced in the Urals in 1891, when 29,920,000 poods (482,600 tons) were produced; but this has increased from 3 to 14 per cent annually, the output for 1900 amounting to 49,470,000 poods (797,900 tons). There were one hundred and seven works in operation in the Ural district during the year 1900—sixty-five producing pig, thirty-nine merchant iron, three rails, seven machinery, and one railway cars.

The average production of each furnace in 1890 was 268,000 poods (4,300 tons), as against 410,000 poods (6,600 tons) in 1900. The highest annual product of one furnace was 2,500,000 poods (40,300 tons). From 8,000,000 to 13,000,000 poods (129,000 to 209,700 tons) goes to market, while the remainder is converted into iron, steel, and castings.

In 1892, the Ural works produced 16,250,000 poods (262,100 tons) of wrought iron and 3,770,000 poods (60,800 tons) of foundry metal; in 1900, 18,000,000 poods (290,300 tons) of wrought and 13,000,000 poods (209,700 tons) of foundry metal.

The forge pig is chiefly produced from magnetic ore, and is distinguished for its purity, which makes it valuable for conversion into steel.

The Government has announced its intention to build during the present year a new furnace on the Kama River near the Votkinski works, to supply the latter with pig iron for the manufacture of engines, machinery, tools, and steamships. This plant will receive its ore from the Baikal district by water.

Coal has been mined in the Urals, during the past twenty-five years, by the most primitive methods. There are eight mines in operation, five on the eastern and three on the western slope. The former produced 20,000,000 poods (325,200 tons), while the latter furnished about 600,000 poods (9,700 tons), the total increase for ten years being but 5,000,000 poods (80,600 tons). The veins vary between one-half and $2\frac{1}{2}$ sagens in thickness, and, while the coal is poor in quality, it is used for coking.

There are three copper plants in operation, which in 1891 produced 174,000 poods (2,800 tons) of metal, but have only been running in an irregular way during the past two years, during which time they produced 230,000 poods.

The Ural platinum deposits are the only mines that are being successfully worked, and they furnish 96 per cent of the world's supply. The most valuable territory is owned and operated by a French syndicate, but there are a few private mines still in the hands of the peasants which are being worked after the old methods. These mines produced 258 poods (9,317 pounds) during the year 1891, and 332 poods (11,989 pounds) during 1900, but the price rose from 8,000 to 14,000 rubles (\$4,120 to \$7,210) during the past few years.

Salt has been produced in the Urals since the sixteenth century; it is obtained from wells and evaporated, the brine strength being from 12 to 26° Behme. The output increased from 15,000,000 to 20,000,000 poods (540,000,000 to 720,000,000 pounds) in 1900.

There are considerable deposits of manganese ore in the Urals, as well as in the south of Russia, and works are now being erected to work the former and prepare the fireproof material, which is abundant, for the market.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *January 28, 1901.*

SHOE INDUSTRY IN RUSSIA.

The boot and shoe industry is one of the most flourishing branches of trade in Russia. This is due to the enormous demand, the high protective tariff, and the lack of competition.

The following data, gathered from very reliable sources, may be of interest to our own manufacturers.

Within the last six months, the import duties on many articles have been increased. Boots and shoes have to pay from 30 to 50 per cent more than formerly. In consequence of this increase, it has become impossible to import American or any foreign-made goods.

With the exception of a few small concerns in Warsaw, there is only one large shoe factory in Russia—the St. Petersburg Machine-Made Shoe Company. This concern does an enormous business and is one of the most prosperous stock companies in the Empire. Its shares are not in the market and none can be purchased.

It is evident that a single factory is utterly unable to meet all the demands of such a large country as Russia, and furthermore as the article of American manufacture, which is far superior to the domestic, has been frequently in demand but can not be imported under present circumstances, this would without doubt be a wide field for American enterprise. Should our manufacturers establish factories in this country, they would, with their improved methods and better class of work, meet with practically no competition and reap results far superior to those which they can obtain elsewhere.

WM. A. HEYDECKER,

Vice and Deputy Consul-General.

ST. PETERSBURG, *February 8, 1901.*

STAMPED DOCUMENTS IN RUSSIA.

The Russian Minister of Finance has just issued an order revising the regulations fixing the amount of revenue stamps to be attached to legal and official papers.

Hereafter all petitions, declarations, claims, complaints, etc., presented by private persons to the civil and court officials, and copies of documents and attached papers, as well as the answers of the officials to said documents, copies, and certificates issued by them, must be accompanied by a 60-kopek (30.9 cents) stamp, which is a reduction of 20 kopecks (10.3 cents).

Documents relating to the establishment of manufactories and

the organization of companies must be accompanied by a 1-ruble (51.5 cents) stamp, an increase of 20 kopecks (10.3 cents). This includes petitions, explanations, declarations, claims, complaints, and copies of said documents, presented by private persons in order to obtain the rights of personal or hereditary nobility, citizenship, admission to tradesmen's corporation, or as attorneys at law, as well as permits for establishing factories and companies and amending the statutes of the latter, all sorts of letters of credit, mortgage deeds, wills, contracts, and stipulations concerning breach of contracts for a sum exceeding 50 rubles (\$25.75), and writs of execution issued by courts of justice.

On all other papers and documents, stamps of from 5 kopecks (2.58 cents) to 1 ruble (51.5 cents) are paid, in proportion to their value.

All bills, accounts, and receipts exceeding 50 rubles (\$25.75) must have a 15-kopeck (7.7 cents) stamp attached.

The amount required on powers of attorney for salary, fees, pensions, remuneration, subscription, is reduced from 80 to 10 kopecks (41 to 5.15 cents). Agreements of rents not exceeding 50 rubles (\$25.75) must bear a 10-kopeck (5.15 cents) stamp.

Personal obligations, transit bills, and contracts for sums not exceeding 50 rubles (\$25.75), made abroad, must bear a 10-kopeck stamp, if the amount exceeds 50 rubles; 15 kopecks (7.7 cents) for every 100 rubles (\$51.50).

Stock documents not exceeding 10,000 rubles (\$5,150) require a 40-kopeck (20.6 cents) stamp for every 100 rubles, and 4 rubles (\$2.06) for every 1,000 rubles (\$515), if the amount exceeds 10,000 rubles (\$5,150).

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *January 11, 1901.*

PRODUCTION OF CORKS IN RUSSIA.

The excise department of the Ministry of Finance, which has charge of the alcohol monopoly, has of late been having trouble with the manufacturers of corks. The latter attempted to form a trust against the Government in order to compel it to accept exorbitant prices. This attempt failed; but the department determined, in order to avoid similar recurrences, to open a cork factory of its own. The results afforded by tests made on a small scale and under unfavorable circumstances have proved quite satisfactory.

The yearly consumption of the excise department is about six billions of corks; the Government intends for the present to produce two billions.

As some of the largest cork factories are situated in the United States, it is quite possible that American experience and ingenuity may have devised improved machinery for the production of corks, in which case the manufacturers of such machinery would now have a good opportunity of offering their services.

WM A. HEYDECKER,

Vice and Deputy Consul-General.

ST. PETERSBURG, *February 6, 1901.*

SULPHUR IN RUSSIA.

A large area of sulphur deposit has been recently discovered in the trans-Caspian territory of Siberia, which section, according to the article in a German periodical on which I base this report, is also rich in cotton, coal, and petroleum.

These new sulphur deposits, which can be considered among the most profitable on earth, are about 160 kilometers (100 miles) from the city Kwiva and about 270 kilometers (168 miles) from the station Askhabad, on the Trans-Caspian Railroad; they cover an area of some 6,000 hectares (15,000 acres).

The sulphur forms about 60 per cent of the sandstone in which it occurs, in three little groups of hills northwest of the Ungus Valley, and according to present estimates amounts to about 9,000,000 tons.

The local conditions for obtaining this product are said to be so favorable that no shafts nor great quarrying will be required, although it will be necessary to build a narrow-gauge railroad of 168 miles to Askhabad.

That this discovery is of the greatest value and importance is evident from the fact that Russia consumes annually about 20,000 tons of sulphur, and up to the time of this discovery has produced annually only about 1,000 tons.

E. THEOPHILUS LIEFELD,

FREIBURG, *February 4, 1901.*

Consul.

THE SICILIAN SULPHUR COMBINATION.

The Anglo-Sicilian Sulphur Company, Limited, has notified the producers of sulphur with whom it has contracts that it will continue the agreements for another five years—until July 31, 1906—the original contracts being for five years, with the option of renewal on the part of the company for an additional five years, notice of renewal to be given in January, 1901.

The company started business in August, 1896, controlling about 80 per cent of the total production, which percentage has been reduced to about 55 per cent on account of the opening of new mines and improvements in mining. Contracts have been made with outsiders, so that the company starts the next five years with the control of about 70 per cent of the production.

The export of sulphur increased from 384,000 tons (of 2,240 pounds) in 1896 to 550,160 tons in 1900. Stock on hand December 31, 1900, was 219,800 tons, against 269,530 tons on December 31, 1899.

A full report on the sulphur trade of Sicily can be found on page 495 of the Special Consular Reports on Trusts and Trade Combinations in Europe.

ALEXANDER HEINGARTNER,

CATANIA, *January 25, 1901.*

Consul.

BAVARIAN VS. CEYLON GRAPHITE.

This mineral, which is now so much in request as a lubricator of machinery, is one of the most valuable products of Bavaria, and, like lithographic stone, represents almost a monopoly for the country, as the only formidable competitor in the supply of natural graphite is the Island of Ceylon. The production of graphite in Ceylon has, however, diminished from 30,000 tons to some 12,000 or 15,000 tons annually, causing a great rise in prices, as the deficit could not be made good from other sources. The price of Ceylon graphite ranges from \$250 to \$375 per ton. In Bavaria, the graphite deposits are found near Passau and are inferior to the Ceylon graphite, as, while the latter is nearly pure, the former has about 60 to 75 per cent earthy substances mixed with it. The Passau graphite, however, can be purified by a very simple and inexpensive process and a substance produced that is quite equal to the Ceylon graphite. Unfortunately, owing to local conditions, this process is little used, as the deposits are divided among a number of proprietors, who work on a small scale in the cheapest manner possible. The result is that there is great waste of the raw material, and it is alleged that nearly 90 per cent of the mineral is absolutely thrown away, owing to this unscientific and shortsighted system of working, which must lead to the premature exhaustion of the deposits. In 1898, there were 49 graphite works in Bavaria, employing only 216 men, which produced 4,593 tons of graphite, worth \$97,915.

OLIVER J. D. HUGHES,

COBURG, *January 19, 1901.*

Consul.

CHANGE IN THE EUROPEAN COAL SITUATION.

The recent severe weakness of coal at Cardiff confirms my apprehension, expressed on April 3 last,* concerning the disadvantages under which American coal would labor in this market under normal general conditions. I then explained the manner in which the coal-contracting business is carried on and stated that, until the United States could create a merchant marine capable of carrying coal abroad, we should be dependent, not only upon British vessels for transporting our product, but upon British middlemen for selling it upon arrival, and that when our coal was selling at substantially the same prices as Cardiff coal abroad, we could hope for little extension of the business at the hands of existing agencies for its manipulation. The present situation is fully set forth in the following facts given to me by Messrs. Watson & Parker, of this city, under date of February 4:

In reply to your letter of the 2d, we beg to say that South Wales coals were sold here during the month of January at 30s. (\$7.29) per ton. New River (American) coals were delivered with a reduction of 2s. (48 cents) a ton. The present price at Cardiff to-day is about 18s. to 19s. (\$4.38 to \$4.62) per ton, according to qualities. Freight for the last fortnight have ruled at 7 to 9 francs (\$1.35 to \$1.73) per ton, and the last charter, on Friday last, was 8 francs (\$1.54). Prices from the 1st instant at most of the Mediterranean depots have been reduced 1s. to 2s. per ton, and we expect Marseilles will follow.

There is no doubt in my mind that the rapid fall of prices at Cardiff, followed by a sympathetic weakness in freight rates, is due to the large quantities of American coal which have been pouring into European ports ever since the recent condition became understood in the United States. Fearing the loss of long-established trade, the British exporters have not hesitated to cut their exorbitant prices, and to such an extent that another upward reaction is not unlikely to set in when the British scare subsides.

When the Marseilles selling syndicate, which comprises practically all the firms engaged in the trade in this city, fixed the price of navigation coal in October for the year 1901, 35s. (\$8.51) was agreed upon, the assumption being that slightly lower but still high prices would prevail throughout the present year. How completely this expectation has failed of realization is reflected by the speedy break of the combination price to 30s. (\$7.29), which is not being actually maintained, the local prices for Cardiff coal fluctuating round about 28s. (\$6.80). Notwithstanding the change, it will be

* See Special Consular Reports, Foreign Markets for American Coal.

noted that American coal is still being quoted at something under British prices, but can not, of course, support a much further decline. At my request, the firm of Worms & Co., who were the first to handle American coal in large quantities in Europe and who have disposed of it, not only in Marseilles, but in other French ports, have prepared a résumé of their views on the subject, which I have translated as follows:

PARIS, *January 29, 1901.*

MESSRS. WORMS & CO.,

Marseilles.

GENTLEMEN: In reply to the letter addressed to you by the consul of the United States of America, we have pleasure in giving you our opinion concerning the present situation and future outlook for American coal at Marseilles.

By reason of the phenomenal rise in price which took place during the past year in English coals, the American products were able to take a somewhat important place in our market; we ourselves transacted business of importance with the Paris, Lyons, and Mediterranean Railway Company and with the Compagnie des Messageries Maritimes, in addition to which we have tried these coals on the large English and Japanese lines of our clientele. The quality of the coal has been recognized as good; but its great drawback is that it is not screened at the mines, as is the case with the Cardiff coal, consequently arriving here with a much larger proportion of small coal and dust than is found in the latter coal.

In the second half of last year, signs of weakness were evident in the English markets, these growing daily more marked, and we are at present confronted by a definite lowering, which, according to some, threatens to become a veritable crash.

To this element of the cost of the product is also to be added a serious fall in the cost of freight from England to the Mediterranean, all of which makes possible the quotation of prices for deliveries of English coal at Marseilles, not greatly differing from those obtaining in 1899.

These circumstances will naturally deal a somewhat severe blow to the efforts of importers to maintain for the American product the place they desire on the Marseilles market. As far as we are concerned, we continue to receive it and shall receive it for the remainder of the year, having already made contracts for purchase and freight in the course of last year, which we are to-day obliged to carry out. We do not wish to conceal, however, that these contracts have been made onerous for us by reason of the improvement of the situation in Wales, which we regret. We will add that as a consequence of this improvement, and in the improbability of a further rise occurring in England, we consider that the days of American coal in the basin of the Mediterranean are numbered. In addition to what we have negotiated ourselves for delivery at Marseilles during the current year, we are aware of other transactions effected at Trieste and probably at Genoa which are being executed; but it may be said that these are but the sequel of a situation originated in the past year, and we can not see how this can continue to exist beyond the contracts made for the current year, unless the American exporters so organize as to offer themselves, taking all responsibility and expenses, conditions of transport totally different from those which the European importers have hitherto been able to meet with on the market. We mean that, up to the present, all the tonnage which we have had at our disposal for placing American coal in Europe has been that of English steamers, which, one may rest assured, will never be able to navigate below a given rate of freight, which is and will be such that business will be impossible at the time of normal prices in England. We are aware

that there is question in the United States of the creation of a transport enterprise intended to place coal from that country in Europe in considerable quantities, but we allow ourselves some doubts as to its success.

All that we have said above concerns steam coal, destined for navigation and industrial purposes, but it may be applied equally to gas coal. We believe that the gas works of Marseilles in the summer or autumn of the past year contracted for 15,000 tons of gas coal from America to be delivered during the first half of the current year; but, judging from the present price, which is very unfavorable to the company, we are inclined to believe that it will be some time before it renews any such undertakings.

Receive, gentlemen, our distinguished salutations.

WORMS & CO.

The total receipts of coal during the year 1900, as reported to me by the commandant of the port, more than sustain my prediction made last spring that the purchases made for this market in the United States during the year 1900 would aggregate 100,000 tons. The following are the figures:

	Tons.
Receipts from the United States.....	118,491
Receipts from Great Britain.....	856,038

While the market has undoubtedly taken an unfavorable turn for American trade, I am far from sharing in the pessimistic view held by Messrs. Worms & Co. On the contrary, I believe that the actual conditions should spur our exporters to renewed and increased effort to control the business. Our success will be welcomed by the people of France for obvious reasons, and so deep is their interest in the matter that certain harbor extensions are being planned with especial regard for large modern colliers, which are expected to arrive in the port, flying the American flag. Under ordinary conditions, the coal trade in the Mediterranean country can not be undertaken by people of limited experience and capital. The field is essentially one for exploitation by that class of American business men who can master all the difficulties of mining, manipulation, forwarding by land and sea, and sale abroad to the ultimate consumer.

ROBERT P. SKINNER,

MARSEILLES, *February 8, 1901.*

Consul.

CONSUMPTION OF COAL DUST IN GERMANY.

Many experiments have been made of late to fire furnaces with coal dust, principally with apparatus having some form of fan blower to introduce the fuel into the furnace. It can not be said that much success has attended the application of these devices. The Schwarzkopff apparatus has, however, met with much favor in Germany, owing to the facility it affords for utilizing slack or low-grade coal.

A German imperial commission appointed to test smoke-consuming appliances made careful trials of this apparatus, and the report generally is highly favorable. As to the conditions peculiar to the process, it is stated that a highly heated fire chamber is necessary for the ignition of the coal dust. The higher the temperature, the quicker and more perfect will be the combustion. Contact with the boiler walls interferes with ignition, so that in fitting up a boiler for coal-dust firing some change in the arrangement has to be made. A fire chamber lined with fireproof material has to be provided, because only such a chamber can be kept constantly at the required high temperature. This is most easily accomplished with flue boilers when the flues are lined for a length of from 5 to 8 feet with fireproof material. Metallurgical firings do not offer any difficulty to the arranging of the fire chamber, because the whole furnace possesses the high temperature required. In these cases, the fire chamber can be considerably shorter.

The necessity of a fire chamber is not an inconvenience, but a special advantage in coal-dust firing, because it insures a perfect combustion, a high temperature of the gases at the start, and protection against the formation of needle flames. At high temperature, there will be always perfect combustion to carbonic-acid gas and water, while at low temperature the more refractory hydrocarbons do not burn at all, or but imperfectly, causing the formation of soot or smoke. Finally, these chambers offer for boiler firings, in case of stoppage, the advantage that by the heat stored in the fireproof walls the steam pressure is longer maintained.

The apparatus seems also to insure a smokeless combustion. If experience of its use corroborates all that is said of this arrangement, more will doubtless be heard about it.

OLIVER J. D. HUGHES,

COBURG, *January 25, 1901.*

Consul.

ELECTRICAL RAILWAY DEVELOPMENT IN GERMANY.

It is reported from Berlin, under date of January 14, 1901, that the railway of the future was the subject of discussion at an audience which Privy Councilor Rathenau, superintendent of the works of the General Electricity Company (Allgemeine Electricitäts-Gesellschaft), has recently had with the Emperor. The Emperor expressed himself as being in favor of a complete change of the entire railway service. Electrical power must be used for the transportation of passengers, though for the present it will be necessary to continue the use of

steam for moving freight. Mr. Rathenau gave the Emperor detailed information emphasizing the necessity of constructing electrical railways for direct and rapid connection between Berlin and the principal cities of the German Empire.

He added that it would be a great national triumph if Germany could be the leader in the creation of this most modern means of transportation.

For the purpose of furthering this project, a number of prominent industrial and banking firms formed some time ago a society for investigation, the presidency of which has been accepted by Dr. Schulz, president of the imperial railway department. The deliberations of this society will probably result in the opening for traffic during the current year of an electric railway which the Secretary of War has placed at the disposal of the society, namely, the military line from Berlin to Zossen. It is hoped that a speed of from 125 to 155 miles per hour can be attained with cars of which one will be built by the General Electricity Company and one by the firm Siemens & Halske. These cars will each accommodate fifty passengers and will look very much like the sleeping cars now in use. If the experiments on this line, which is 18 miles in length, result satisfactorily, the time will not be distant when it will be possible to travel, for example, from Berlin to Hamburg in a little over an hour in cars which will follow each other at intervals of ten minutes. By raising the speed, which now averages 37 miles per hour for fast trains, to 155 miles per hour, and by dispatching the cars singly, the ideal railway of the future will have been reached.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *January 16, 1901.*

ELECTRIC STREET RAILWAY IN MANNHEIM.

I have to report the putting into operation of a new electric street-railway system in this city, to take the place of the horse-car system heretofore in use. The present equipment is modern in all respects. The track is heavy and was laid on a solid foundation of stone and cement. The electric equipment was furnished by Siemens & Halske, of Berlin; the cars were built by a Hamburg car company. The system belongs to the city and is operated by a street-car bureau appointed by the city government. The technical engineer in charge of the lines was formerly in charge of those at Basel. Power for operating the cars is furnished by the city light and power plant. Further extensions of the lines are contemplated the coming year.

The ordinary system of transfers is in use over the lines and will

apply to the extensions. A minimum charge of 10 pfennigs (2.38 cents) is charged over the shorter courses now in operation and 15 pfennigs (3.57 cents) over the longer courses. These rates, by the purchase of fifty tickets, are reduced to a little less than 2 and 3 cents, respectively.

The lines have been in use for about five weeks. The management claim to be well satisfied with the travel.

H. W. HARRIS,

MANNHEIM, *January 8, 1901.*

Consul.

ELECTRIC LIGHTING FOR GERMAN SHIPS.

An article in the *Electrotechnische Zeitschrift* treats of electrical installations on new ships of the German navy:

It appears that in the German service separate lead and return wires have been generally adopted, concentric cables being used in the neighborhood of the ships' compasses. Attempts to employ the ship's structure as a return have not attained successful results, and, so far as large vessels are concerned, this practice has been entirely superseded; but in the case of new torpedo boats, where economy in weight is a vital consideration, the practice still holds. In all places exposed to the danger of mechanical injury, such as the engine rooms and stock holds, lead-covered, iron-armored cables are employed, while elsewhere cables well insulated with rubber, but otherwise unprotected, except in some cases by thin rust-proof wire, are used. The wood casing formerly employed has been abolished, owing to its inflammability. Hitherto, the telegraph and telephone cables have been of the lead-covered, iron-armored type; but the newest ships have been provided with a central subway, like a corridor, as well as side corridors below the armored deck, which may be used for the electric cables, telegraph and telephone wires, etc., thereby avoiding all danger of mechanical injury to the same. It is proposed to dispense with the steel armor in the future, even for the lighting and power cables, retaining only the lead protection.

The practice of soldering branch connections has also been discarded in favor of branch fuse-boxes, in which the connections are made with terminal bars. These branch circuit boxes are made for two, three, four, six, and eight lamps. They are of course water tight. Their introduction seems to have been a complete success, facilitating as they do systematic supervision of the ship's wiring.

Although slate is at present generally used for switchboard bases in the service, it is interesting to learn that iron is proposed as a substitute, owing to the unavoidable breakages which occur. Small machine boards with iron bases have already been successfully introduced, but the difficulty of insulating the terminals and connections has hitherto prevented the adoption of the plan on a large scale. With the exception of the connections with the measuring instruments, all the switchboard connections on the *Fürst Bismarck* were for the first time made with bare copper bars, whereby a neat, solid construction is obtained, which is also accessible. The necessary protection against moisture is provided by enamel, which also serves to distinguish the poles, red and blue being used. This type of board is particularly advantageous where the available space is limited in depth, since the connections behind require no supervision, and the screw terminals may all be withdrawn from the front of the board.

Mr. Fritz Forster, in an article in the *Electrotechnischer Anzeiger*, discusses the use of accumulators for supplying electric light on ocean steamers. It appears that a German firm, which makes a specialty of ship installations, has recently installed, experimentally, quite a number of batteries of accumulators in Hamburg ships. All these ships previously possessed generating plants, the dynamos being either shunt or compound wound machines; but in each case they were designed to yield only the normal difference of potential required for the lighting, whence it was necessary to provide for charging the accumulators, subsequently introduced, in two parallel batteries, in order to avoid essential modifications of the existing plant. The accumulators, fitted with acid-tight covers of vulcanite, were placed in a compartment as near the switchboard as possible in each case and firmly secured. A diagram which accompanies the article shows the connections adopted to facilitate cutting out the compound winding of a dynamo when charging, so as to enable it to be run temporarily as a shunt-wound machine. As the writer suggests, experience alone can prove the adaptability of accumulators for ship-lighting purposes. But it is not impossible that they may play an important part in the future of this branch of electrical work, and they will be specially useful when a ship is in port and the boilers not under steam.

FRANKFORT, *January 15, 1901.*

RICHARD GUENTHER,
Consul-General.

GASLIGHT VS. ELECTRICITY.

A popular impression seems to exist that gaslight will soon be superseded by electric lighting. This does not appear to be justified by the facts, either in Europe or in America.

New gas companies are constantly being formed here and old plants increased in capacity.

In Germany, gas is made from hard coal, while in America, water gas is chiefly used. Five cubic meters of German gas produce a candlepower of from 13 to 14 lights per hour, while the American carbureted water gas furnishes from 26 to 30 for the same quantity and time. Statistical tables prepared by Professor Bunte, of Karlsruhe, show that the consumption of gas is much larger in the United States than in cities of the same size in Germany.

In 1893, the city of New York produced 320,000,000 cubic meters at a selling price of 4.2 cents per cubic meter, while Paris (France) in the same year produced 300,000,000 cubic meters at a selling price of 5.72 cents per cubic meter. In subsequent years, the production in both cities has not decreased.

The entire electric lighting of the world of to-day is estimated at not more than 20 per cent that of gas.

For this year Berlin has appropriated nearly \$500,000 for new gas plants, and only last year the largest gas reservoir in Germany was erected in a Berlin suburb (Schmargendorf) with a capacity of 8,400 cubic meters.

It appears to be evident that gas will continue to be used very extensively, unless the price of electricity is greatly reduced.

RICHARD GUENTHER,

FRANKFORT, *January 19, 1901.*

Consul-General.

ARTIFICIAL-SILK FACTORIES IN EUROPE.

Consul Mahin reports from Reichenberg, January 28, 1901:

A bit of news is floating through the continental papers to the effect that at the present time three factories for the production of artificial silk are in active operation. One at Wolston, England, produces 3,000 kilograms (6,613.8 pounds) weekly; one at Besançon, France, produces 900 kilograms (1,984.14 pounds) daily; and one at Spreitenbach produces 275 kilograms (606.25 pounds) daily. Presumably, Spreitenbach is in Germany, but the name does not appear in the lists of municipalities available here.

It is further stated that other factories will soon be erected in Belgium and Germany.

Attempts, more or less successful, to make silk without the intervention of the silkworm are nothing new in Europe, but reports of complete fruition should be taken cum grano salis.

Consul-General Guenther sends the following from Frankfort, January 29, 1901:

Before the Frankfort Society of Natural Philosophy, Dr. Freund recently delivered a lecture on the manufacture of artificial silk.

He said that artificial silk is a substitute for natural silk as much as oleomargarine is for butter. It can compete with natural silk, but is not as valuable. Although it has been used as a covering for cables and a substitute for horsehair, it has a tendency to break if wetted, and for this reason it must be usually mixed with natural silk and cotton.

More brilliant effects can be produced with artificial than with natural silk, and it is cheaper. It is confidently expected that this industry, which is a purely chemical one, will become highly developed.

ELECTRIC TRAMWAYS IN CARDIFF.

Electrical tramways are at last being erected in this town of nearly 200,000 inhabitants. Like many other cities in Great Britain, Cardiff has been behind the times in traveling conveyances. By the decision of the town council, this enterprise is divided into two departments, namely, the public works and the tramways. The borough engineer acts as architect for the erection of the buildings. He has to put up the power station and car depots, prepare the tracks, lay all the lines, and then hand them over to the tramways department for electrical equipment. The tramways engineer has to design all the plant for the power station, provide plans for cable laying, direct the overhead equipment, and all other details after the borough engineer has turned over to him the tracks and necessary buildings. The foundations for the power station are already completed and gangs of men are busily at work laying tracks. The following excerpt from a local paper will explain the rest:

To outline this large undertaking, dealing with the electrical side first, the power station is a commodious building which is being erected on a site of 6 acres at Roath, beyond the T. V. R. Roath Branch bridge on the Newport road. The station itself consists of a complete set of offices, together with the necessary engine room and boiler house. The engine room will be 104 feet long by 60 feet wide, with boiler houses on either side. Outside the boiler houses there is a special coal-storage arrangement whereby fuel is tipped from wagons on the railway siding into large hoppers immediately above the boilers. For tramway purposes there will be laid down four engines of 500 horsepower each, capable of running up to a maximum of 650 horsepower. On the shaft of each engine there will be mounted an electric generator of 300-kilowatt capacity, and these are built to withstand a temporary overload of 50 per cent. Very ample provisions have been made for condensing, each engine having coupled to it its own condenser, while outside the building there is room for a large reservoir for cooling purposes. Besides the plant already on order, the engine room is capable of accommodating a further 3,000 horsepower, and half of this it is proposed to install during the present year for lighting purposes, so that shortly after the station is opened there will be there 3,500 horsepower.

A feature of the design is that all the engines and generators are built to supply current for lighting and traction, the object being to minimize as much as possible the amount of reserve plant. Each boiler house will hold seven boilers, making fourteen in all. Each boiler has a capacity of 500 horsepower, and four are now on order for tramway work; but, as it has now been decided to take current for lighting from this station, it will be necessary to install three or four other boilers. These are of the Lancashire type, each one having two flues, and each flue is provided with five cross tubes, so that steam can be raised quickly. In addition to the boilers, there will be complete sets of economizers, the purpose of which is to heat the feed water before it is pumped into the boilers. The economizers are placed in the main flue, between the boiler and the chimney stack. Superheaters will be attached to each boiler, the purpose of these being to extract from the steam, after

it leaves the boiler and before it enters the engine, as much of the moisture as possible. Elaborate arrangements are to be made for dealing with coal. From the railway siding coal will be placed in hoppers, and from these it will be automatically fed into the furnaces, and similar labor-saving methods will be resorted to in dealing with the ashes.

The whole of the energy developed at this station will be delivered from the generators to the main switchboard, which will be fixed at one end of the engine room, extending the whole width, viz, 60 feet. The board will consist of marble panels, each engine having its own panel, from which the machine will be controlled, while upon other panels will be fixed all the necessary apparatus for transmitting the power along the various tramway routes. The cables are to be drawn through earthenware conduits which are now being laid from the power station, and to provide for the present cables and those necessary in the future there will be laid thirty earthenware conduits. This number becomes reduced, however, as the various distributing centers are reached.

Thus the old dispensation of horse cars and the freezing discomforts in riding on the tops of 'buses will soon be things of the past.

DANIEL T. PHILLIPS,

CARDIFF, *January 16, 1901.*

Consul.

PRESENT CONDITION OF WIRELESS TELEGRAPHY.

The experiments in wireless telegraphy now being made in this city show the many difficulties inventors encounter in putting into practice the results of their researches.

Mr. Emile Guarini, the inventor of the automatic repeater, the value of which is soon to be tested at Malines, says his experiments have cost him more than 50,000 francs (\$9,650). Patents, independent of descriptions, plans, etc., necessary to render his invention comprehensible, have cost him more than 20,000 francs (\$3,860).

I have recently received from Mr. Guarini some very interesting data regarding wireless telegraphy, and give the substance below:

PRESENT CONDITION OF WIRELESS TELEGRAPHY.

More or less erroneous accounts of wonderful results obtained by wireless telegraphy have appeared in many of the daily papers. Readers have accepted these accounts as journalistic canards, which, in view of the style of some of them, is excusable. Others more credulous were startled by the results obtained, which appeared almost like witchcraft. In the turmoil of business and progress in which we live, "savants" have made wonderful research during the last century, in the silence of their laboratories, in the science of optics, elasticity, and electricity, and have, through ardent and laborious study, erected one of the most admirable monuments of human genius, "the electro-magnetic theory of light," owing its origin to three great men—Fresnel, Maxwell, and Hertz. No later than four years ago, this theory seemed bound to remain the prerogative of a few philosophers;

but now practice has mastered the essential results of these high conceptions and has made an instrument capable of a great number of applications.

The trials of wireless telegraphy are not new. Mr. Preece, the chief engineer of the English telegraph office, made experiments in 1892 and 1894 in wireless telegraphy, utilizing what electricians call "induction effects." There is also some reason to believe that the first experiments of wireless telegraphy date from 1876. The system at present most popular employs electro-magnetic oscillations of ether. This invisible medium, according to scientists, penetrates all bodies, the oscillations being only distinguished from luminous rays as quantitative, the electric rays being in reality many millions of times longer than the luminous rays. As the luminous rays streaming from a candle or from an electric lamp are equally divided in space, electric invisible rays spring from one electric spark, spreading into space in all directions. Technicians have proved that the discharge of an electric spark, such as lightning, is effected in oscillating movements—as the string of a violin which has just been strummed on vibrates successively until in complete repose. And as the string transmits to the surrounding air oscillating vibratory movements which we find in sound, the ether is transformed in undulating movements by the electric spark. We can not perceive these movements, but that which human organs can perceive is what a very simple little apparatus called "coherer" or "radioconductor" can do. This small apparatus is in general not formed of anything but a little glass tube containing metallic powder and terminating on each side in a good conducting electric wire. This coherer opposes a considerable resistance to the electric current. In other terms, the space between the two conductors occupied by the file dust must be considered as an interrupter. But this resistance is reduced to a minimum as soon as an electro-magnetic ray, spreading from an electric spark producer, reaches the tube; in other terms, the electric contact is established. Thus, without going farther, the possibility of regular telegraphy is admitted; for, as soon as the electric resistance of the coherer is lessened under the influence of electric rays, a local electric current—viz, galvanic—may run through the coherer, become sensitive, and cause a Morse apparatus to play. By very light blows on the coherer, a strong primitive resistance is established.

Here it is interesting to remark that there is no sort of connection between the energy put into liberty by the electric spark and the one that causes the Morse apparatus to play. The energy emitted by the spark and that influences the tube of file dust only serves as projector; it fills the same rôle as the mechanic's hand that opens a tap and puts a powerful machine into motion. And for the same reason that it is not the mechanic who furnished the necessary power to put the machine into motion, so it is true that the Morse apparatus is not put into action by the transmitted ray of the spark producer, but by the current of a galvanic local battery.

This remark is indispensable. If one day the problem of wireless telephone is solved and the transmission of wireless electric motor power, heat, and lighting attained, it can not be said that it had as basis or principle the present system of telegraphy. Truly the idea would be that the electric ray acts from a distance without the help of any local battery and without coherer the Morse apparatus. But, unfortunately, we have not yet advanced so far; certainly, if that could be, the apparatuses would be greatly simplified, and wireless telegraphy would enter a new stage. Mr. Calzecchi Onesti, an Italian, discovered in 1885 the value of metallic filings, but it was a Frenchman—Mr. Branly, professor of the Catholic Institute at Paris—who constructed in 1890 the first powerful tube of file dust which he called "radioconductor." Dr. Lodge, an Englishman, was the first to explain the advantages to be drawn from the tubes of file dust as indicators of electric rays. The contrivance of

Mr. Lodge was employed by the author to repeat the experiments of Hertz. The first practical application was realized by Mr. Popoff, professor at the naval college at Cronstadt.

The idea of utilizing the power of electric rays for the transmission of signals seems to belong to the English scientist Dr. Lodge, who, in a conference which took place in 1894, expressed the idea that the presence of electric rays might be discovered by means of the Branly tube up to a distance of half a mile from their starting point. But no experiments were made to verify the fact. In 1895 and 1896, Mr. Popoff used his contrivance in trials of communications by wireless telegraphy. About the same time, another Russian—Mr. Nasckevitch Iodko—made independently of Mr. Popoff analogous experiments. In 1896 Mr. Marconi undertook, in his turn, essays or telegraphic communication by "hertzienne" rays. The measures he took at that time, analogous to the course adopted by Popoff, are actually the same as those now employed. But important improvements in details have been steadily made in the Popoff contrivance by the young Italian. Some of these are but imperfectly known, but it is certain that these have allowed the inventor to obtain results far superior to those already obtained by all other experimenters. He has been assisted in this by a very important English company—"Wireless Telegraph Company"—the owner of his patents.

In France, the "Ducretet" measure is applied by M. Tissot. In America the Navy Department is studying a special type of apparatus, so as not to accept the caudine forks of the English company. In Austria, experiments are made under the Schaeffer system, and it appears that the Lloyd Company has established a station for wireless-telegraph communication between Bremorhofer, a light-house situated at Borkum, and a light-ship. In Russia the Popoff system is used. In Germany, the system officially adopted by the imperial navy is the Slaby-Arco, constructed by the L'Allgemeine Electricitäts Gesellschaft.

Of the foregoing systems, the most perfected, complete, and at the same time the most complicated and costly is without doubt the Marconi system. The English Admiralty has decided to adopt it and will pay about 38,000 francs (\$7,334) per apparatus—that is, 2,500 francs (\$482.50) per year per apparatus for a period of fifteen years.

The transmitting and receiving machines that Mr. Guarini will use at the Antwerp station and in Brussels are in principle analogous to the above-mentioned ones; but Mr. Guarini has made numerous improvements in detail.

From the beginning of experiments made with the wireless telegraph, it was discovered that a transmitter could work several receivers at the same time; and it was further remarked that if a recipient was worked by several transmitters, issuing different signals, these signals were quite unreadable and impossible to make out. Many experimenters, to obviate this, have had recourse to a contrivance called "accord" or "syntonization," which consists of the following:

In acoustics there exists a phenomena called resonance. Let us suppose three diapasons, two of which, in vibrating, produce 800 vibrations per second and the other only 500. The duration of oscillation, otherwise called the period of the first two diapasons, is one eight-hundredth of a second and that of the third one five-hundredth of a second. What is termed the "length of a ray" is obtained by dividing the speed of sound in the air—342 meters—by the number of vibrations per second. For the first two diapasons the length of a ray is $342 \div 800 = 0.42$ meter and for the third the length of ray is $342 \div 500 = 0.68$ meter. If the three diapasons are placed at a suitable distance, and if the third diapason is made to vibrate, the other two do not answer; they would be at variance—that is, they would have a period of different vibrations. If the first diapason vibrates, the second will vibrate without being touched, because it is in sympathy with the first—that is, it has the

same period of vibration as the first. The third diapason will not vibrate for the reasons already explained.

With the apparatuses of wireless telegraphs, the same phenomena can almost equally be proved. Let us state at once that the length of an electric ray, and therefore what is termed "period" of oscillation, depends on three coefficients—the "capacity," "resistance," and "self-induction" of the electric circuit from which the spark is produced, called "discharge" by specialists. When two apparatuses are put in accord, the coefficients may be varied. Each experimenter obtains the effect desired—that is, according to his own style. Thus we have the Marconi, Slaby-Arco Blondel, Tommasi Jegen systems, without naming others. Mr. Guarini will also use the syntonization system. This is necessary if great distances of transmission are to be reached.

The contrivance above mentioned was experimented with by Marconi in 1899, and has given almost conclusive results. However, for the accord to be efficacious, each station must be at least 2,500 meters distant from the other. Supposing there are three double stations (transmitter, receiver), one at Brussels, one at Antwerp, and the other at Liege. The distance between Brussels and Antwerp, Brussels and Liege, Antwerp and Liege—that is, between three of these stations and the two others—is more than 2,500 meters (8,202 feet). The Brussels station is in accord with the Antwerp one; Brussels transmits, Antwerp replies, that is, receives the signals; Liege remains dumb. Vice versa, Antwerp transmits, Brussels replies; Liege, as previously, does not reply. It is possible, owing to what is termed variable accord, to use the same apparatuses to make Brussels communicate with Liege without any reply from Antwerp; Brussels with Antwerp, without any reply from Liege; Liege with Antwerp, without any reply from Brussels. It is possible by varying in each station the three coefficients "capacity," "resistance," and "self-induction" (this last term to be understood as the inertness of a body starting into movement), or one of these three factors, to obtain from one moment to another a different accord, such as to be able to correspond with the three stations Brussels, Antwerp, and Liege.

In practice, this can be obtained by disposing the three contacts, each being able to include in the circuit a "capacity," a "self-induction," and a "resistance," larger or smaller, according to the case. For the three stations three different accords correspond to the contacts; the accord 1 is the same at Brussels, Antwerp, and at Liege, also the accord 2 and 3. The normal period of the Brussels station is the accord 1, Antwerp 2, and Liege 3. The three stations, being at variance, can not be in communication. When Brussels wishes to communicate with Antwerp, the contact 2 is shut, and consequently it passes on to the 2 period. Brussels is then in accord with Antwerp, which receives the signals, while Liege, which has the period 3, does not answer. When the communication is finished, the Brussels station returns to the normal accord 1 or passes on to the 3 contact, in which case Antwerp does not reply. To prevent Liege upsetting the Brussels-Antwerp communication by passing from the period 2 to the period 1 (Brussels), Brussels, before transmitting to Antwerp (2), passes to the Liege period, so as to give notice it is engaged. At the end of the communication, Brussels warns Liege again (3), and everything returns to its normal state.

In case of war—and let us hasten to state that in time of war wireless telegraphy presents enormous advantages—the enemy could succeed by tampering with the accord of the two apparatuses, and at the same time it would be quite possible for him to upset the correspondence or to intercept a message. By making use of the variable accord and by varying the accord of the two corresponding apparatuses in a conventional way, it would be impossible for the enemy to arrive at the same result as the preceding, because from the moment he succeeded in according his apparatus the accord would change, and he would have to begin again.

Let us consider now if one wished to transmit from Brussels at the same time to Antwerp and Liege and receive from Namur and Ostend. It would then be necessary to have in Brussels two transmitting apparatuses and two receiving apparatuses. Referring to what has been previously said, the two transmitting and receiving apparatuses must be placed at a distance of 2,500 meters—that is to say, the transmitters at St. Gilles and the receivers at Kockelberg. If it were otherwise, the two transmitters of Brussels would act on the two receivers of the same locality. All this easily explains how Marconi has been able to realize the duplex communication in one sense. It has sufficed for him to place two transmitters of different periods at Poole and two receivers at St. Catherine in accord and working with the two transmitters above stated. This would not have happened had he placed a transmitter and a receiver of different caliber at Poole and a receiver and a transmitter suited to the previous apparatuses at St. Catherine.

The system which Mr. Guarini employs to attain the same end is based on a very different principle. He surrounds his transmitting and receiving "antenne" by a metallic sheath having a longitudinal slit. The slits of these sheaths correspond with one another in the two stations. In the same way that a light shut in a room only throws out its rays where it finds issue and has its rays stopped by walls, the transmitting antenne, surrounded by its sheath, only allows its rays to filter through where there are longitudinal slits. A system can thus be conceived that limits the space where the electric radiations are sent and even concentrates them. The receiving feeler only receives rays from the side where the slit is opened; radiations coming from other directions reach the sheath and furrow into the ground. This system is simple and much more certain than the problematic one of syntonization, but it is impractical, or nearly so, for motive power or communication, as, per example, between ships and coast ships. If it is desired to communicate from Brussels simultaneously with Antwerp and Liege, it would be sufficient to lay at Brussels two transmitters with antennes and sheaths. The slit in the sheath of each transmitter must be respectively turned toward Antwerp and Liege. The space through which the radiations are sent being very limited, it would be almost impossible to intercept the message. On the other side, each transmitter sends radiations exclusively to the station to which they are destined, and thus each transmitter would send the telegram to its destination, as ordinary telegraph wire sends telegrams to the station to which they are destined.

By sea, the maximum of transmission obtained by Marconi was 52 kilometers (32 miles) in 1899. It appears that in recent trials 136 kilometers (84 miles) have been obtained at sea, and, if Marconi's hopes are realized, this distance can still be increased by sea and on level land. In fact, on land, except by the use of captive balloons or kites, not more than 15 kilometers (9 miles) distance has been obtained at Berlin with the Slaby-Arco system. We must not, however, allow our imagination a too-free rein, as it is quite certain that nature will offer an impassable limit. However great, in fact, may be the power brought to bear at the transmission station, inevitable loss of strength occurs on the run of the "hertzienne" rays, which reach the receiver considerably weakened. These losses are notably the production of heat on the rays' passage through more or less resisting bodies, in their successive deviations and reflections on metallic substances, etc. The rays themselves are a notable cause of weakness in the power. The height of the antenne, increased by the distance to be cleared—also the practical question of construction and financial interest—will soon oppose any increase of distance. As sequel to the losses above mentioned the hertzienne rays fade away at a certain distance from the production station. Then, the world is round, and the rays spread in a straight line. The skein of concentrated rays must be bent at the curving of the earth by deviations or successive reflections; and thus the losing game will begin again.

It is thus necessary to have recourse to other means to solve the problem of wireless telegraphy at all distances. The ordinary electric telegraphy, even primitive electric telegraphy of former times, gives us the principle of it in relays or translators. The translator or repeater must be able to receive the electric radiations coming from a station or relay post; to give fresh impulse to these radiations and to propel them to an extreme station or another relay post.

Admitting that 500 kilometers (310 miles) can be attained by direct transmission, to compel a telegram to make the world's circuit, eighty intermediary posts would be necessary, the world's circumference being about 40,000 kilometers (24,854 miles). It is indispensable to have in the intermediary stations a unique apparatus that can repeat the telegram at the same time as it receives it; this repetition must be made automatically so as to economize time and personnel. Every automatic repeater must be essentially composed of a receiver and a transmitter. Then our telegram, to go round the world, will not require more than two hours' time, the only requisite delay proceeding from the inertia of the different apparatuses.

Although Mr. Guarini had expressed doubts as to the possibility of transmitting messages direct from Brussels to Antwerp, a distance of 41 kilometers (25 miles), by wireless telegraphy, he nevertheless made an attempt to do so on the 21st instant, and successfully demonstrated the impossibility of sending wireless messages direct between the two cities, owing to the great distance. As above stated, he had predicted his failure, adding that up to the present it has been impossible to operate wireless telegraphy without captive balloons or simple masts (the only utilizable means) not only between Brussels and Antwerp, but also between Malines and Antwerp (22 kilometers=13 miles).

As will be observed, Mr. Guarini's invention is explained in the foregoing report. He has recently installed a relay on the tower of St. Rombant, at Malines, a city midway between Brussels and Antwerp, and hopes thus to prove the efficiency of wireless telegraphy by relays, after having established the impossibility of direct communication between the two cities.

GEO. W. ROOSEVELT,

BRUSSELS, *January 25, 1901.*

Consul.

SUPPLEMENTARY REPORT.

After transmitting my report on "Present condition of wireless telegraphy," dated January 25, 1901, I learn that the experiment of transmission of electric rays by relays was completely successful. Mr. Guarini made his experiments over a much more limited distance Friday afternoon (January 25, 1901). He telegraphed between Brussels (column of congress) and Malines (tower of St. Rombant Church), and his experiments were crowned with success. Numerous messages were transmitted and received with great distinctness,

and two messages were received at a time when communication of the transmitter with the ground had been interrupted.

It is the first time that messages have been exchanged between two large cities with the antennae placed on high monuments, without help of captive balloons or kites. The rays to arrive at Malines traversed several towns—Schaarbeek, Haren, Vilvorde, Eppegheem, and a large part of Malines—over chimneys, monuments, woods, etc., which constitute obstacles which stop or weaken the electric radiations.

GEO. W. ROOSEVELT,

BRUSSELS, *January 28, 1901.*

Consul.

THE BECQUEREL RAYS.

A new technical journal, "Kirchhoff's Technische Blätter," to be issued within a few days, will contain an interesting article concerning the latest rays.

In 1895, a French chemist discovered rays emanating from the element uranium which possessed properties similar to the Röntgen rays. They were called Becquerel rays, after their discoverer. But while the discovery of Röntgen aroused great interest in the whole civilized world, leading to radical changes in medical diagnosis, the Becquerel rays were only employed in a very limited way in physical laboratories, and an assertion by the French scientist Demarcays that they were not emitted from uranium, but from a new element, made no impression.

Recent experiments by the Berlin High School of Technology have proven this assertion—that a new element is responsible for the Becquerel rays—and the interesting fact has been observed that these rays render almost every transparent substance luminous in the darkness.

These rays make it possible to tell genuine diamonds from artificial ones in the dark. This will prove of great practical importance in testing. The experiments have also resulted in obtaining, for the first time, larger quantities of the new element, which has demonstrated that rays emanating from a larger quantity make the air such a conductor of electricity that it is hoped this property can be utilized in wireless telegraphy. Experiments for this purpose are being made in the Berlin institution, but the deepest secrecy is maintained concerning them. It is stated that the results will soon be laid before the Emperor, which seems to indicate that the discovery is regarded as one of great importance.

RICHARD GUENTHER,

FRANKFORT, *January 31, 1901.*

Consul-General.

MOVEMENT IN AUSTRIA AGAINST AMERICAN IMPORTS.

The expiration of the tariff treaties of Austria-Hungary in 1902 will necessitate a general revision of the customs laws of the country. There is a strong element in Austria which views with great displeasure the increasing imports of American commodities that come into direct competition with the products of the Austrian soil or workshop. The representatives of the Austrian iron and steel industry have repeatedly demanded the imposition of higher import duties upon our iron and steel ware, and the owners of olive groves have combined with the refiners of edible oils to demand a material increase in the duty on all oils which are used as substitutes for olive oil. There is no doubt that the sole aim of the latter movement is to prohibit entirely the importation of American cotton-seed oil.

Recently, the Austrian Butchers' and Packers' Association appealed to the various chambers of commerce in the Empire to join them in petitioning the Ministries of Agriculture and Commerce to prohibit the importation of American meat. The association claims that no necessity whatever exists for the importation of foreign meat stuffs, and that Austrian cattle breeding and trade are being greatly harmed by such importation. All the chambers have promised their cooperation in the proposed movement, with the exception of that of Klagenfurt. This body declares that it is not in favor of prohibitive measures, on account of the reprisals that would probably follow. It favors, however, a more thorough examination of all meats imported, declaring American methods of inspection too superficial to satisfy the European consumer.

There is certainly every indication that the new tariff laws of the Monarchy will be framed with a special view to prohibiting the importation of American products, unless the manufacturers, as well as the laboring classes, enter a decided protest against such a policy—the former from fear of American retaliation; the latter because of the rise in the cost of necessities of life which would inevitably follow.

Austria buys from us much more than she sells to us, and that is perhaps the reason why a majority of her economists do not fear American retaliation. Prohibitionists in Trieste point to the fact that the total value of merchandise exported from this port to the United States in the year 1899 was only \$792,611, while direct im-

ports from the United States during the same year amounted to \$7,876,990.

Of course, it is the agrarian element that has started, and is constantly furnishing fuel for, this agitation. Public opinion, as far at least as it is at present expressed, is certainly on the side of the prohibitionists, who, it must be remembered, are a well-organized and active body, while their opponents, however numerous, are scattered and slow to move. It may therefore not be fully realized that there is another side to this question until it comes up for a final hearing.

FREDK. W. HOSSFELD,
Consul.

TRIESTE, *February 15, 1901.*

PEAT WOOD IN AUSTRIA.

No natural product of the earth has been so much neglected and so little esteemed as peat; yet it contains a mine of wealth for those who can appreciate its possibilities. By its adaptability as material for fuel it is of particular interest now, when the price of coal is so high in both hemispheres. It seems timely, therefore, to direct attention to this product, which exists in vast deposits throughout the temperate zone and is present in especially large quantities all over North America, the beds ranging from 10 to 40 feet in depth, promising an available supply for many years to come. Although as yet peat can not successfully compete as a fuel with anthracite coal, since in proportion to its heating value it is of great bulk, and hence makes transportation dearer; nevertheless, with the necessity of making practical use of it, invention can not fail to be stimulated. The problem of so saturating and compressing it into bricks as to make it replace anthracite coal for household and industrial purposes can without doubt be solved eventually.

Machines have already been constructed by means of which this valuable product can be mined with facility, and peat has been put to a variety of industrial uses. Progress in Austria in the employment of peat is shown in the manufacture of a patent artificial wood—so-called peat wood. This artificial wood is especially distinguished by the property that, in moist soil, it hardens steadily, owing to the formation of calcareous hydrosilicate of alumina. It is perfectly adapted as a material for street paving, being absolutely free from dust, noiseless, and exceedingly durable. Natural-wood blocks, on the other hand, do not sufficiently resist atmospheric influences and soon warp. Peat wood is also excellently suited for railroad sleepers. Screws, rivets, and nails become as firmly

fastened therein as in the best of oak. Wood sleepers rot in damp soil, while moisture only renders the peat wood harder. All kinds of wood, from willow to oak, can be excellently imitated in this new material, which holds out, in suitable districts, fair promise of growing into a source of profitable business enterprise.

CARL BAILEY HURST,

VIENNA, *February 1, 1901.*

Consul-General.

TESTING PRECIOUS STONES.

Consul-General Guenther, of Frankfort, under date of February 11, 1901, writes as follows:

In a lecture on precious stones, recently delivered before the Industrial Association of Berlin, Dr. Immanuel Friedländer said that the testing of diamonds is comparatively simple. The common test for hardness suffices. If the stone resists strong attacks, it is certain to be genuine; if it does not, the damage is insignificant, as only an imitation has been destroyed. This test, however, is doubtful with rubies. If a ruby can be affected by a steel file or by quartz, it is surely not genuine; but such a test with a topaz is liable to injure a valuable stone.

The test for hardness is of no avail with emeralds, as this stone is not much harder than quartz, and in addition possesses the quality of cracking easily.

For examining rubies and emeralds, the optical test is best. A glass magnifying about one hundred times suffices. Every expert knows that almost all precious stones have little flaws. Nearly every ruby and all emeralds have many defects, which are so characteristic that the genuineness of the stones is readily established. Such a test is very necessary with rubies, because the imitations are very deceiving. Their color is absolutely durable and often much finer than that of the genuine, although it may be stated that a somewhat yellowish tint is always suspicious.

The only reliable way in which genuine rubies can be told from imitations is by the minute air bubbles of the latter, which become clearly visible under the magnifying glass. These are not to be found in the natural gem; on the other hand, the imitations lack certain defects characteristic of genuine rubies—certain vacuums, whose outlines are much more indistinct than those of the air bubbles in imitations.

True emeralds have similar characteristic defects, such as inclusions of liquids and curious dendrites. Sapphires also show peculiar netlike formations.

GERMAN MANUFACTURES AND AGRICULTURAL PRODUCTS.*

During a recent discussion in the German Parliament, an Agrarian member of the House asserted that the total value of the agricultural products of Germany was larger than that of the manufactured goods. This statement is questioned by a leading commercial paper, which submits figures for 1897 (none more recent being available). For a few branches of industry, the final amounts of the selling value are missing, so that the tables give too low a figure for the total value of industrial products.

Industries.	Value of output.	Industries.	Value of output.
Textile industries.....	\$654,490,000	Glass industries.....	\$27,420,000
Mining and iron industries.....	922,590,000	Paper industries.....	66,530,000
Chemical industries.....	225,600,000	Paper-working industries.....	64,650,000
Caoutchouc, gutta-percha, and celluloid industries.....	18,830,000	Leather industries.....	80,030,000
Quarry and cement industries.....	33,220,000	Tobacco industries.....	77,350,000
Ceramic industries.....	27,680,000	Total	2,202,790,000

The statistics with regard to the value of agricultural products in 1897 are taken from the same source and give the following results:

Article.	Total tonnage of harvest in 1897.	Wholesale price per ton.	Selling value.
	<i>Tons.*</i>		
Corn.....	8,170,511	\$28.39	\$231,990,000
Wheat.....	3,263,235	31.30	102,130,000
Summer barley.....	2,564,439	31.92	81,850,000
Potatoes.....	33,776,060	8.13	27,490,000
Oats.....	5,718,647	30.36	198,560,000
Total	53,492,892		642,020,000

* Of 2,204.6 pounds.

It is shown that the value of the agricultural products is very far behind that of the manufactured products.

CLIVER J. D. HUGHES,

COBURG, *February 6, 1901.*

Consul.

* A report covering the same data has been received from Consul-General Guenther, of Frankfurt.

PROPOSED DUTIES ON CEREALS IN GERMANY.

Consul-General Guenther reports from Frankfort, January 31, 1901:

German papers publish extracts from the St. Petersburg *Novoe Vremia* concerning the proposed higher duties on cereals imported into Germany. The article says that Russia and the United States should come to an agreement with reference to supplying European markets rather than compete with each other. The United States should note that danger threatens her from Germany. The agrarians are seeking to compensate Russia at the expense of the United States, and the latter should enter into an agreement with Russia that would avoid unrestricted competition. A tariff war between Russia and Germany, it adds, may be inevitable, though it would prove disastrous to both countries.

Under date of February 16, Deputy Consul-General Hanauer, of Frankfort, submits the following:

The German-Russian Association, comprising a large number of chambers of commerce and commercial firms in Germany which have organized to stimulate German exports to Russia, has just presented a memorandum to the Imperial Chancellor of Germany urging measures discriminating in favor of Russian grain, in case the tariff on imported food stuffs is increased. It is hoped this preferential treatment will induce Russia to make tariff concessions on German goods.

The memorandum shows that German merchandise exports to Russia increased in the last decade from 183,000,000 marks (\$43,554,000) to 366,000,000 marks (\$87,108,000), and this trade will, if present conditions are not disturbed, continue in a like satisfactory manner.

Any check to the trade, it is added, would be the more serious, as the United States is working to gain the Russian market; in machinery alone, its exports to Russia increased from \$150,000 in 1890 to nearly \$3,000,000 in 1899.

MEAT-INSPECTION LAW IN GERMANY.

The new meat-inspection law which was passed about a year ago by the German Government, which absolutely prohibits the importation of American corned beef, sausages, etc., has had one year's trial, but has made no friends. In a recent convention of physicians, Dr. Karl Frankel, professor of hygiene in the university at Halle, an authority on all questions bearing on public health, gave utterance to very severe criticisms of the new law. He even went so far as to say that the law was nothing more than a cloak, faded and worn, hung over the agrarian idol. He asserted that he spoke in the interests of national hygiene, and showed that while the Government had declared that the passage of the law was required in the interest of public health, nothing suffered more from the passage of said law than did the public health of this nation, for the prevailing high prices of meat necessarily lessened its consumption, while the health of the nation demanded an increase.

That the prices of meat in Germany have risen materially since the passage of the law is well known to everyone who uses meat. I have before me a report from one of the largest factories of textiles in Silesia. This factory employs from 1,500 to 1,600 men. Like many other large industrial establishments, it has a store (Consumanstalt) of its own, where the workingmen may get all their groceries and other food supplies at almost cost price. Formerly, the leading kind of meat supplied to the people was American corned beef, and every family figured on using about a pound of it a day, the cost being 14 cents per pound. Now, there is no more American corned beef to be had, and fresh meat of home production has taken its place. The manager of the factory has investigated the increase of expense to the people for meat since the passage of the new law, and he has come to the conclusion that every consumer at his factory must pay 20 per cent more than he formerly did, as every buyer of fresh meat must take a certain proportion of bone and fat, thereby much lessening the amount of solid meat. According to his estimate, 3 cents has been added to the price of each pound of meat sold at the factory. To men with scant earnings, an increase of over 21 cents in their weekly household expenses for meat alone is no small item.

The trade in American canned meats formerly amounted to from \$6,000,000 to \$10,000,000 per annum.

HENRY W. DIEDERICH,

BREMEN, *January 31, 1901.*

Consul.

GERMAN WINE AND GRAPE TRADE IN 1900.

The following figures have been submitted by Consul Schumann, of Mainz, under date of February 14, 1901:

Imported from and exported to—	Imports.	Exports.
<i>Wine and must in casks.</i>	<i>Cwt.</i>	<i>Cwt.</i>
France.....	674,278	15,785
Greece.....	35,002	.....
Italy.....	85,578	.....
Austria-Hungary.....	162,485	7,419
Portugal.....	65,925	.....
Switzerland.....	6,450	54,485
Spain.....	217,600	.....
Turkey in Europe.....	9,815	.....
Turkey in Asia.....	82,986	.....
Algeria.....	7,858	.....
Chile.....	4,105	.....
United States.....	11,624	72,452
Belgium.....	.....	47,718
Denmark.....	.....	3,949
Great Britain.....	.....	49,775
Netherlands.....	.....	22,225
Russia.....	.....	15,345
Finland.....	.....	4,815
Sweden.....	.....	5,383
Other countries.....	8,270	10,334
Total in 1900.....	1,371,966	310,684
Total in 1899.....	1,308,310	294,882
Increase.....	63,656	15,802
<i>Red wine for blending.</i>		
France.....	29,009	.....
Greece.....	27,984	.....
Italy.....	105,338	.....
Austria-Hungary.....	10,732	.....
Spain.....	76,520	.....
Other countries.....	8,283	.....
Total in 1900.....	257,866	.....
Total in 1899.....	247,146	.....
Increase.....	10,720	.....
<i>Wine for distilling brandy.</i>		
France.....	20,746	.....
Italy.....	2,573	.....
Other countries.....	3,826	.....
Total in 1900.....	26,765	.....
Total in 1899.....	19,627	.....
Increase.....	7,138	.....
<i>Sparkling wine (champagne).</i>		
Belgium.....	165	3,777
France.....	12,183	.....
Great Britain.....	.....	24,622
Sweden.....	.....	2,032

Imported from and exported to—	Imports.	Exports.
<i>Sparkling wine (champagne)— Continued.</i>	<i>Cwts.</i>	<i>Cwts.</i>
United States.....		2,522
Other countries.....	354	11,937
Total in 1900.....	92,582	44,990
Total in 1899.....	61,360	40,208
Increase.....	31,222	4,782
<i>Still wine in bottles.</i>		
France.....	11,194	9,137
Austria-Hungary.....	1,553	7,234
Free port Hamburg.....		5,643
Belgium.....		6,017
Great Britain.....		54,417
Netherlands.....		16,009
Norway.....		1,874
Russia.....		2,420
Finland.....		2,037
Sweden.....		4,543
Switzerland.....		1,804
British West Africa.....		1,758
German East Africa.....		2,088
British India.....		1,868
China.....		4,885
United States.....		36,307
Other countries.....	4,593	19,401
Total in 1900.....	17,340	177,685
Total in 1899.....	14,733	175,634
Increase.....	2,607	2,051
<i>Spirits in casks.</i>		
France.....	80,546	
Great Britain.....	20,610	
Netherlands.....	17,442	
Netherlands colonies.....	14,997	
British West Indies.....	41,578	
United States.....	4,594	
Free port Bremerhaven-Geestemünde.....		7,082
French West Africa.....		4,684
Other countries.....	3,685	27,946
Total in 1900.....	183,453	39,712
Total in 1899.....	103,525	47,222
Increase.....	79,927	
Decrease.....		7,500
<i>Spirits in bottles.</i>		
France.....	3,872	
Great Britain.....	286	
British West Africa.....		113,102
German West Africa.....		10,448
French West Africa.....		17,716
Kongo Free State.....		9,372
Portuguese West Africa.....		9,090
Other countries.....	768	35,414
Total in 1900.....	4,926	196,132
Total in 1899.....	3,953	332,500
Increase.....	973	
Decrease.....		136,368

Imported from and exported to—	Imports.	Exports.
<i>Dessert grapes.</i>	<i>Cvts.</i>	<i>Cvts.</i>
Belgium	2,600	
France	13,420	132
Italy	157,755	
Austria-Hungary	21,545	118
Portugal	3,936	
Spain	26,026	
Switzerland		543
Other countries	4,721	258
Total in 1900	230,003	1,051
Total in 1899	247,425	1,315
Decrease	17,422	264
<i>Common grapes.</i>		
France	139,377	50
Italy	63,098	
Austria-Hungary	61,215	
Spain	101,648	
Switzerland		90
Other countries	1,897	2
Total in 1900	367,235	151
Total in 1899	619,350	201
Decrease	252,115	50

Value of the imports and exports in United States gold.

Description.	Imports.		Exports.	
	1900.	1899.	1900.	1899.
Wine and must, in casks	\$8,489,598	\$7,982,520	\$2,315,740	\$2,201,262
Red wine for blending	678,538	723,282		
Wine for distilling brandy	60,452	46,648		
Sparkling wine (champagne)	2,253,622	1,493,450	559,018	491,470
Still wine (in bottles)	311,304	264,656	2,556,596	2,622,046
Spirits:				
In casks	3,056,396	1,657,670	133,280	148,274
In bottles	229,670	183,498	731,136	1,134,070
Dessert grapes	1,148,112	1,183,098	6,902	8,568
Common grapes	779,450	1,387,540	476	714
Total	17,007,242	14,922,362	6,244,148	6,606,434

WINE AND CIDER PRODUCTION OF FRANCE IN 1900.

Estimates of the wine and cider production of France for 1900, forecasting an unusually large yield, have already been published; but it may be of interest to the wine and fruit industries of the United States to have the official figures which have recently been made public by the bureau of internal revenue (Administration des Contributions Indirectes).

The total yield of wine for 1900 was 67,352,661 hectoliters (1,779,255,246 gallons), which is an increase of 19,444,081 hectoliters (493,654,288 gallons) as compared with the production of 1899 and of 31,388,153 hectoliters (829,180,838 gallons) as compared with the vintage of the last ten years.

The wine crop of France for 1900 was the most abundant since that of the year 1875, which reached the enormous amount of 83,836,000 hectoliters (2,214,695,612 gallons).

The acreage planted in vineyards in 1900 was 1,730,451 hectares (4,275,944 acres), against 1,697,734 hectares (4,195,101 acres) in 1899—an increase of 32,717 hectares (80,843 acres).

The average production per hectare (2.471 acres) was 39 hectoliters (1,030 gallons), that of 1899 being only 28 hectoliters (740 gallons).

The wine crop is valued at 1,264,258,000 francs (\$244,001,794), according to the estimates made in each Department, which were based upon the local selling prices at the vineyards.

The following tables, taken from the official customs statistics, show in detail the volume of the foreign wine trade of France for the last three years and the channels in which it flowed (commerce spécial):

Importations into France of ordinary wine, in casks.

Whence imported.	1900.	1899.	1898.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
Spain.....	57,886,537	83,759,484	124,616,614
Italy.....	2,190,535	1,285,840	327,582
Portugal.....	12,830	21,505	54,240
Algeria.....	61,783,117	122,938,045	86,616,833
Tunis.....	889,772	2,417,879	2,100,099
Others.....	4,256,050	2,708,974	1,821,262
Total.....	127,018,841	213,131,727	215,536,630
Value.....	\$25,980,692	\$43,594,414	\$50,384,339

Importations into France of ordinary wine, in bottles.

Year.	Quantity.	Value.
	<i>Gallons.</i>	
1900.....	178,559	\$65,234
1899.....	159,101	58,112
1898.....	106,895	46,853

Importations into France of sweet wines, in casks.

Whence imported.	1900.	1899.	1898.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
England.....	55,191	49,907	58,071
Spain.....	4,243,263	4,307,800	5,042,785
Others.....	6,251,923	5,903,284	6,524,047
Total.....	10,550,377	10,351,011	11,625,803
Value.....	\$8,002,473	\$7,939,514	\$2,342,007

Importations into France of sweet wines, in bottles.

Year.	Quantity.	Value.
	<i>Gallons.</i>	
1900.....	20,079	\$19,802
1899.....	25,257	24,909
1898.....	33,659	34,423

Exportations from France of ordinary Gironde wines, in casks.

Whither exported.	1900.	1899.	1898.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
England.....	3,453,833	4,313,540	3,901,860
Belgium.....	2,283,612	2,367,839	2,240,125
Germany.....	4,938,162	3,227,493	2,780,440
United States.....	227,185	244,791	176,749
Holland.....	2,744,034	1,788,766	1,356,059
Uruguay.....	264,437	210,171	316,722
Argentine Republic.....	1,066,364	1,381,422	1,526,045
Others.....	3,300,187	3,256,819	2,795,434
Total.....	18,367,814	16,790,811	15,001,464
Value.....	\$12,746,922	\$11,729,937	\$11,666,673

Exportations from France of ordinary wines from other districts than the Gironde, in casks.

Whither exported.	1900.	1899.	1898.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
England.....	815,321	740,542	833,260
Belgium.....	2,934,760	2,750,718	2,524,536
Germany.....	2,630,005	2,475,157	2,102,688
Italy.....	71,086	56,000	41,558
Switzerland.....	4,077,530	3,428,047	3,437,347
United States.....	99,735	85,970	98,573
Algeria.....	215,798	210,030	450,126
Others.....	11,821,127	9,877,037	9,666,774
Total.....	22,665,362	19,623,510	19,193,862
Value.....	\$3,106,570	\$7,824,320	\$7,711,686

Exportations from France of Gironde wines, in bottles.

Whither exported.	1900.	1899.	1898.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
England.....	439,285	639,390	542,481
Holland.....	41,902	38,044	34,451
United States.....	123,353	126,710	114,600
Brazil.....	21,109	32,892	36,380
Argentine Republic.....	9,326	13,315	15,908
Others.....	425,177	396,854	394,794
Total.....	1,060,152	1,247,205	1,138,223
Value.....	\$2,129,739	\$2,595,531	\$2,494,460

Exportations from France of wines from other districts than the Gironde, in bottles.

Whither exported.	1900.	1899.	1898.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
England.....	115,217	170,356	151,465
Belgium.....	77,199	71,994	118,625
Germany.....	32,734	35,614	30,171
Russia.....	19,339	18,969	17,622
Italy.....	31,519	22,800	10,180
Egypt.....	17,357	16,301	26,684
United States.....	57,569	49,537	56,661
Algeria.....	53,606	32,655	36,935
Others.....	838,729	779,680	792,652
Total.....	1,243,260	1,197,966	1,250,295
Value.....	\$92,219	\$875,088	\$1,004,693

Exportations from France of champagne and other sparkling wines.

Whither exported.	1900.	1899.	1898.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>
England.....	2,095,581	2,135,343	2,800,335
Belgium.....	1,255,425	974,316	734,132
Germany.....	428,188	363,078	491,200
Russia.....	165,068	139,629	131,793
United States.....	460,421	422,590	396,749
Others.....	776,426	728,874	738,129
Total.....	5,181,139	4,764,730	5,292,248
Value.....	\$17,250,369	\$15,893,448	\$17,805,836

Exportations from France of sweet wines, in casks and in bottles.

Year.	In casks.		In bottles.	
	Quantity.	Value.	Quantity.	Value.
	<i>Gallons.</i>		<i>Gallons.</i>	
1900.....	726,814	\$663,679	1,077,064	\$1,101,524
1899.....	744,674	679,987	881,502	1,003,792
1898.....	477,277	491,520	752,071	953,662

CIDER PRODUCTION OF 1900.

The cider production of France in 1900 is estimated at 28,408,348 hectoliters (748,463,329 gallons), or 8,573,280 hectoliters (226,480,338 gallons) more than that of 1899 and 13,949,983 hectoliters (368,516,702 gallons) more than the average production for the last ten years.

Since 1830, the greatest production—31,608,585 hectoliters (835,003,990 gallons)—was in 1893, that of the past year being the second largest.

A. M. THACKARA,

HAVRE, *February 7, 1901.*

Consul.

ARTIFICIAL BUILDING STONE IN GERMANY.

Stone produced from sand and lime is destined to become an important factor in the building line. Until recently, this stone was regarded with suspicion, but experiments have resulted in the production of a perfect building stone, and the prejudice with which it has been viewed heretofore has been dispelled. The manufacture of this stone is growing to enormous proportions in Germany, and factories are springing up everywhere. Even the building-inspection police, who on account of the use of inferior stone produced by faulty systems were antagonistic until recently, have dropped all opposition.

The following is a rough sketch of the simplest and best system known for producing this stone—one which, it is said, offers an absolute guaranty of superior quality:

Hydraulic or quick lime, as well as fat or rich lime, may be used; hydraulic lime is preferred, however, if the price warrants it. Of the different kinds of sand, the cleanest is the most suitable, but a small alloy of clay is not objectionable. In fact, it can be said that all kinds of sand suitable for building purposes or for the preparation of mortar may be used. The proportions are from 4 to 6 parts of lime to 94 or 96 parts of sand, the small variation depending on the quality of the sand. After pulverizing the lime in a ball grinder (*Kugelmuehle*), both substances are mechanically measured and then thoroughly mixed by machinery. This mixture is then pressed into stones, which are afterwards piled on flat cars and pushed into a cylindrical boiler. The boiler is then hermetically closed and steam turned on at from 8 to 9 atmospheres. In about ten hours, the process of hardening is finished and the stones are ready for use.

The process of hardening the stones in the boiler is explained as follows:

By the operation of high-pressure steam on the freshly pressed stones, through the influence of the calcium hydro-oxides on the

silicic acid of the sand, different kinds of calcium silicates are formed, which are the accepted standard in the process of hardening. The exact time for hardening is determined by the quantity and the nature of the silicic acid in the sand.

The erection of a plant in Germany for the manufacture of 12,000 stones per day will cost, including buildings, about \$16,000; for one of 25,000 per day, about \$22,000.

To manufacture 1,000 stones 250 by 120 by 65 millimeters (9.84 by 4.66 by 2.56 inches), there are required, beside the sand, 1 workman, 450 pounds of lime, 200 pounds of coal, and about 10 cents worth of grease and oil.

With this same material, face and fancy stone may also be produced. While these bring a much higher price, the common lime-and-sand stone in Germany commands a price of from \$5 to \$9 per thousand, in accordance with the prices paid for clay-brick stone in the several districts.

From various sources, I have learned that the net cost for 1,000 stones ranges from \$2.25 to \$3, but does not exceed the latter sum.

The essential points of advantage in the manufacture of the lime-and-sand over the clay-brick building stone are:

- (1) The cost of production is much lower.
- (2) With a smaller investment, considerably more stone can be produced.
- (3) The production can take place in all seasons of the year and at all hours.
- (4) The stone has a much higher compressive strength—about 550 pounds per square centimeter (0.155 square inch).
- (5) Colored, face, and fancy stone can be produced.
- (6) The stone has a much better and smoother appearance, and there is no loss on account of breakage.
- (7) All drying sheds and brick kilns necessary for the production of clay brick are done away with. A space of 65 by 65 feet is all that is needed for the building of a lime-and-sand stone factory producing 12,000 stones per day.

Another factor of great importance in this system is that, instead of sand, the granulated cinder from the blast furnaces may be used when the mode of manufacture is identical with that of the lime-and-sand stone. Waste of all kinds of sand and of building stones, which contain silicic acid, are equally useful and make a good stone.

The lucrative nature of the manufacture of lime-and-sand stone is apparent; there is no doubt that a net profit of from 40 to 50 per cent and more can be gained by proper calculations.

MAX J. BAEHR,
Consul.

MAGDEBURG, *February 12, 1901.*

DRIED APRICOTS IN GERMANY.

Consul-General Guenther, of Frankfort, under date of February 13, 1901, calls attention to the fact that under the German law dried fruits which have been treated with sulphur are considered injurious to health and are liable to be confiscated, confiscation having actually taken place in several cities.

The consul-general further states that he has been shown two reports by the Chemical-Technical and Hygienic Institute, of Frankfort, relative to samples of dried California apricots, one of which samples showed the presence of 0.03376 per cent of sulphurous acid and the other 0.182 per cent.

If the authorities become cognizant of this fact, continues Mr. Guenther, not only will this fruit be confiscated, but the German dealers, rather than get into difficulties with the authorities, will discontinue the trade.

The consul-general adds that Germany's importation of California dried fruits is increasing, and advises United States exporters to be careful to observe the German laws and not subject their shipments to confiscation. The two consignments of apricots of which samples were analyzed were not shipped directly from California to Frankfort, but were procured from middlemen.

MANUFACTURE OF COCOANUT BUTTER IN MANNHEIM.

The manufacture of cocoanut butter is an industry of some importance in this city. The Mannheim factory is said to be the only one of any considerable size in Germany. It has an output of about 10 tons of butter per day. The business was started in 1886, and, the proprietors say, shows a steady increase. The product is sold under the name of "Palmin"—a registered trade name—or cocoanut butter (German, "Kokosnussbutter"). It is manufactured from the kernels of cocoanuts and is used as a substitute for butter and lard in cooking. As sold, it is generally white in color, almost tasteless, melts at about 80° F., and is of about the consistency of mutton or beef tallow. When desired by consumers, as bakers, confectioners, etc., the product is colored to resemble ordinary butter. When furnished to dealers, it is unlawful to color it. The proprietors claim an analysis of their product shows it to contain more than 99 per cent of vegetable fat, with but a slight trace of water, while ordinary butter contains about 85 per cent of

fat and nearly 15 per cent of water. It is stated that the substance does not become rancid easily, that it will keep for three or four months in a cool room, and that it is much more wholesome and easily digested than the ordinary fats used for baking and cooking. For this reason, the product has met with considerable favor in German hospitals and other institutions, and for use in army camps.

Cocoonut butter is generally put up in square packages wrapped in parchment paper, a small percentage being sold in tin cans. The latter are hermetically sealed for shipment during hot weather. The product is sold at one price throughout Germany, namely, about 16 cents per pound, or about half the price of ordinary butter. It is handled in somewhat limited quantities by about fifty grocers in this city.

The processes of manufacture are for the most part secret and, it is claimed, are protected by patents. The kernel of the cocoonut is imported in thoroughly dried strips, forming the "copra" of commerce. It is subjected to various refining processes by which all the free acids and other substances are separated, leaving only the vegetable fat. In the latter stages of the manufacture the product resembles ordinary butter recently churned. It is placed in machines similar to the separators used in creameries, in which the water and other foreign substances are separated by centrifugal force. In the manufacture of cocoonut butter a by-product, consisting of free acids and other substances, is obtained and sold to soap manufacturers.

H. W. HARRIS,
Consul.

MANHEIM, *December 31, 1900.*

GERMAN CUSTOMS DUES ON COLONIAL PRODUCTS.

The following table, comprising the years 1897, 1898, and 1899, shows the amount received in Germany from customs duties on coffee, cacao, tea, maize, tobacco, and roots coming from German and other colonies:

Article.	1897.	1898.	1899.
Coffee.....	\$12,747,480	\$14,594,160	\$14,860,720
Cacao.....	1,249,500	1,324,470	1,524,390
Tea.....	595,000	642,600	666,400
Maize.....	6,027,588	7,523,656	7,742,616
Tobacco.....	11,854,780	12,138,000	12,097,540
Roots.....	1,285,200	1,178,100	1,213,800
Total.....	33,759,348	37,400,986	38,105,466

Of this total, the receipts from coffee, cacao, tea, maize, tobacco, and roots from German colonies alone amounted to—

Article.	1897.	1898.	1899.
Coffee.....	\$7,235.20	\$5,950.19	\$1,284.00
Cacao.....	7,053.81	17,443.00	19,325.60
Maize.....		1,285.20	1,530.34
Tobacco.....	9,508.10	7,080.50	10,115.00
Roots.....	166.60	112.80	
Total.....	23,973.71	31,951.50	35,254.94

As can be seen from the above table, the customs receipts from cacao, tea, maize, tobacco, and roots coming from German colonies alone are not of much importance; and for this reason, German papers are calling attention to the fact that if the customs duties were abolished, the colonies would be in a better position to compete with the older colonies of other countries and their prosperity would ultimately be materially advanced. It is thought that the loss of the customs receipts would be covered by the augmented exports to the colonies, due to their increased purchasing power. Trade in the Empire itself has been helped by a discriminating customs system, and the papers see no reason why the example of England and France should not be followed by the inauguration of such a system in the German colonies.

J. F. MONAGHAN,

CHEMNITZ, *January 18, 1901.*

Consul.

DECLINE IN GERMAN TEXTILE INDUSTRY.

The following, bearing date of January 26, 1901, has been received from Vice-Consul Adler, of Kehl:

The textile industry of Alsace has for some time been so depressed that it has hardly paid to keep mills running. Manufacturers had counted on an increase in exports, but this trade, on the contrary, has steadily declined. Then some of the leading manufacturers became involved in the financial troubles arising from failures of firms in the cities of Roubaix and Tourcoing, France, which, as reported in the *Textil-Zeitung*, resulted in a loss of over 16,000,000 marks (\$3,808,000) to six of the principal textile workers of Alsace alone. Some factories here closed altogether; others reduced their producing facilities to nearly a minimum, and people in general in the factory towns suffered severely.

In regard to the decline of the exports of textile fabrics from

this consular district, the records of the latter show the following figures:

1896.....	\$319,370. 04
1897.....	241,707. 22
1898.....	170,405. 73
1899.....	95,486. 71
1900.....	48,790. 66

SWEDISH AIR TORPEDO.

An air torpedo of a construction heretofore unknown has been patented by a Swedish major, Mr. Unge, and the inventor has just received a Government subsidy for making experiments with the new torpedo.

The motion of this peculiar projectile through the air, according to the patent specifications, is caused exclusively by a force which is developed in the torpedo little by little from ignition of a gas generated from slowly burning material. The pressure of the gas, gradually becoming stronger, propels the torpedo through an arrangement by which the gas can escape at the bottom. Once in motion, the torpedo therefore increases its speed in the same degree as the gas pressure is increased. The charge may consist of any explosive, provided the same is ignited only by shocks or blows. The initial velocity need be but slight, as the torpedo is impelled by its own force. Therefore, the discharge from the torpedo gun, constructed for the purpose, occasions no report nor recoil and but little pressure, and consequently is not in the least dangerous to those handling the gun. At the trials made so far, the torpedoes traversed a distance of 16,000 feet.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *January 16, 1901.*

GERMAN JUDICIAL DECISION RE DAMAGES BY STRIKES.

The supreme court of the German Empire has rendered an opinion of great importance to persons involved in strikes in this country.

It appears that molders employed in an iron foundry were ordered to finish some models which had come from a foundry where a strike was on. These molders, twenty in number, repeatedly refused to work on these models and finally took their tools and

quit work. They were then discharged without the usual notice, and their employer brought suit for damages.

The court rendered judgment in favor of the plaintiff, awarding him damages to the amount of \$486 (2,043.76 marks), making the defendants jointly and separately liable.

An appeal was taken to a superior court, which affirmed the verdict.

The decision reads in part:

The opinion of the appellate court that every defendant must make restitution to the plaintiff for damages occasioned by the defendant's breach of contract is admitted without hesitation. The defendants, however, claim that the damage is caused through the fault of the plaintiff himself, as they were willing to do other work.

The law can not expect the employer to yield to the unlawful refusal of his employees; his position and the orderly management of the business would thereby become untenable.

The immediate discharge of the defendants does not exclude the claim for damages.

The question is one of premature dissolution of an already existing labor relation, which is caused through the fault of the laborer and for the detrimental consequences of which he is responsible.

The defendants acted in premeditated concert, intending to compel their employer by their united strength to do that which they could not have done singly. Every one of them was conscious that the plaintiff would be injured by his action. It is true there was no joint labor contract; the separate contracts of the defendants are independent of each other; but the violation of these contracts is the means of accomplishing a malicious purpose common to all. They are held jointly and separately for the entire damage.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *January 17, 1901.*

GERMAN OPTICAL AND PLATE GLASS INDUSTRY.

One of the most important industries in my consular district is the manufacture of optical and plate glass and, associated therewith, the construction of scientific and optical instruments. There are two enterprises engaged in this industry, both of which export to the United States. The Deutsche Spiegelglas Actien Gesellschaft, the works of which are situated at Freden, in the province of Hanover, but at the same time in the Brunswick district, manufactures plate glass and lenses for eyeglasses.

The incorporated firm of Voigtländer & Sohn Actien Gesellschaft manufactures optical glass and scientific instruments. During the year ended December 31, 1900, the value of the optical and plate glass shipped to the United States from this district was \$82,193 and the value of the scientific instruments \$1,379. The factory of Voigtländer & Sohn is situated in the city of Brunswick and was

established in 1756. It is said to be the oldest enterprise in this line of business. It employs two hundred and sixty hands and has a staff of fifteen foremen, who are scientifically and technically trained. One branch of the business is the manufacture of photographic objectives of all systems and sizes; euryscopes are made, as well as anastigmatic collinears and apochromat-collinears, used by photographers and employed for process work of all kinds.

This firm also manufactures all sorts of hand and tripod telescopes up to 6 inches (diameter of objective) and Galilean and prismatic binoculars. Since 1811, there has been continual progress in this sort of work, great improvements having been made in the technique of melting glass and the instruments having been lately brought to a high state of efficiency. The firm has recently introduced in the construction of its instruments a new alloy of aluminum and magnesium, called magnalium, which greatly reduces their weight and renders them weatherproof. The managers supply the German navy with marine telescopes and have furnished the German artillery with 6,000 glasses. The trade with the United States has become so important that they have established a branch factory in the city of New York. The firm has gained a reputation for a short rifle telescope which is in general use by sportsmen in Germany.

TALBOT J. ALBERT,
Consul.

BRUNSWICK, *January 22, 1901.*

CINEMATOGRAPH FOR THE BLIND IN FRANCE.

Dr. Dussaud, of the Psychological Institute of Paris, gave a lecture on February 16 at the Hospital des Sociétés Savantes on the education of the blind and deaf. A large audience witnessed interesting experiments founded on his method for supplementing the senses of these two classes of unfortunates.

The cinematograph for the blind is a machine which passes under the fingers of the blind, a series of reliefs representing the same object in different positions—the branch of a tree, a bird, or any other object. The blind person has the illusion of moving scenes, just as photographs passing over a luminous screen lend the illusion to those with sight.

Dr. Dussaud has also arranged an electric vibration for the use of the deaf who are incurable. This gives them the notion of musical rhythm. For those not entirely deaf, he has invented a "gradual amplifier of sounds," which supplements the organs of hearing and in some instances improves them.

Dr. Dussaud expressed the hope that these two inventions would materially aid in the education of the deaf and blind.

The doctor gave a number of statistics already furnished by him to the Academy of Medicine and the Society of Biology, showing that his method had been applied during the last four years to more than three hundred patients affected either with blindness or deafness, and that in most cases the results obtained had been extremely satisfactory.

W. P. ATWELL,

ROUBAIX, *February 18, 1901.*

Consul.

ANTWERP IVORY MARKET.

Consul-General Lincoln reports from Antwerp, February 16, 1901:

The first quarterly sale of the year took place on the 5th instant, the quantity of ivory offered for sale being as follows:

Kongo:	Pounds.
Hard.....	137, 960
Soft.....	12, 350
Angola.....	20, 985
Kamerun.....	11, 307
Gaboon	4, 090
Abyssinian.....	4, 806
Mozambique	286
Gold Coast and Senegal.....	1, 566
Total	193, 350
Hippopotamus tusks.....	50
Grand total.....	193, 400

The totals for the corresponding quarter of preceding years were:

	Pounds.
1900.....	160, 195
1899.....	141, 466
1898.....	126, 555
1897.....	131, 656
1896.....	145, 062
1895.....	135, 256

Higher prices were obtained for heavy tusks of good and medium qualities; inferior grades were disposed of at about 19 cents per 2.2046 pounds under last prices; the same is true of oversizes and tusks for bangles. Tusks for balls showed a slight falling off in values, but solid scrivailles advanced by about 9 cents per 2.2046 pounds. Soft ivory was disposed of at good prices. The stock on hand amounts to about 298,723 pounds.

GERMAN MINING SYNDICATE IN SPAIN.

A powerful German mining syndicate has been formed and has taken possession of a large group of iron mines in the province of Lugo, which the managers have begun to work successfully, making connections with the inland mines by a series of aerial ways to a large depot they have built on the Bay of Vivero, alongside wharves at which their steamships can load. The ores, which are phosphoric, are said to contain 50 per cent of fine iron. The phosphorus is utilized for the manufacture of mineral manure. It is calculated that for the current year the extraction will total about 125,000 tons, which, it has been arranged, will be transported to Rotterdam. It is estimated that the deposit is 5,000,000 cubic meters in extent, or equal to 15,000,000 tons in weight. A mountainous district in the southeastern part of Lugo, favorably known to the ancients as a mineral producer, contains a deposit giving from 57 to 62 per cent of pure iron. The exploitation of this mineral has hitherto been hindered by want of economical means of transport; but a survey for a railway is now being carried out, and when this is completed a large and important mineral industry will certainly be developed.

OLIVER J. D. HUGHES,

COBURG, *January 19, 1901.*

Consul.

PRODUCTION OF SUGAR IN SPAIN.

During the season of 1899-1900, there were in Spain 41 beet-sugar mills, of which 26 utilized 490,647 tons of beets, producing 50,426 tons of sugar. Of this amount, 47,535 tons were sold, leaving a stock of about 3,000 tons.

According to Government statistics, furnished up to the end of the third quarter of last year, 156,645 tons of the crop of 1900-1901 had been worked at that time by 21 mills, with an output of 10,866 tons of sugar. Of this quantity, 6,347 tons have been consumed and 5,519 tons added to the stock on hand.

Of the 50,426 tons of sugar produced by the 1899-1900 crop, about 21,590 tons were extracted by the mills at Granada, 9,158 tons at Oviedo, 9,000 tons at Saragossa, 3,800 tons at Malaga, about 3,000 tons at Madrid, 2,500 tons at Almeria, 959 tons at Santander, 390 tons at Valladolid, and about 29 tons at Cordoba.

During the same period, the 28 cane-sugar mills in Spain extracted 33,215 tons of sugar from 258,181 tons of cane. Of this

quantity of sugar, about 19,318 tons have been placed on the market and have paid the necessary duty; 3,138 tons have been placed in special depots, and some 2,813 tons were taken by the refineries, leaving a stock of about 8,000 tons in the hands of the manufacturers.

There are 2 sugar-cane mills in Almeria, 10 in Granada, and 16 in Malaga.

JULIUS G. LAY,

BARCELONA, *January 20, 1901.*

Consul-General.

SUGAR INDUSTRY IN SPAIN.

The sugar manufacturers of Spain are considerably disturbed over the present conditions of this industry. During 1900, the production of sugar amounted to 150,000 tons, against a consumption of only 85,000 tons. This large overproduction has naturally caused manufacturers much anxiety, and an effort was made recently to form a syndicate for the purpose of regulating the production and fixing the prices of sugar and for finding new markets. The cane-sugar manufacturers, however, refused to join the combination, which, under the circumstances, even if organization is effected, is not likely to accomplish much. The surplus is due to the large area sown in sugar beets—only 33,000 tons of sugar having been manufactured from cane.

In spite of the large production of 1900, prices have been maintained. These, it need hardly be said, are much higher than in the United States. For example, the retail price of white lump sugar is about 9 cents; powdered or granulated, about $7\frac{1}{4}$ cents. There is also a poor quality of broken lump sugar that retails at about $5\frac{1}{2}$ cents a pound.

The Government tax on sugar at present is 25 pesetas (about \$3.75) per 100 kilograms (220.46 pounds), paid by the manufacturer, which, of course, prevents the exportation of the commodity.

A strict surveillance is maintained by the Government over all manufacturers of sugar. Here in Andalusia, for instance, Government agents always oversee the weighing of the cane, none of which can be crushed except in their presence. Careful note is also taken that the amount of sugar produced from this cane is not less than it should be. No sugar is allowed to leave a factory except in the presence of these agents, who note the weight and fix the Government stamp on each package. It is unlawful to buy or sell any package of sugar that does not bear this stamp. The Government, however, gives the manufacturer a chance to sell his sugar and make collections before paying this tax; that is to say, the payment of the

tax is not demanded until the expiration of three months after the sugar leaves the manufacturer's hands.

From the residue of the cane, an excellent quality of alcohol is distilled. This process also undergoes a careful supervision by Government agents.

BENJ. H. RIDGELY,
Consul.

MALAGA, *February 11, 1901.*

COFFEE CULTIVATION IN SPAIN.

The cultivation of coffee for commercial purposes is about to be undertaken for the first time in the province of Malaga at the little village of Campanillas, some 5 miles from the capital. Don Quirico Lopez, a rich wine merchant of Malaga, will begin by setting out from 20,000 to 50,000 coffee plants on his plantations there.

As long as Cuba and Porto Rico were Spanish possessions, the cultivation of coffee in the peninsula of Spain was forbidden, but under present conditions the Government interposes no objection. Señor Lopez has already made some experiments and is convinced that coffee can be advantageously grown in this province and elsewhere in Andalusia. Others who have examined the question claim that there is not sufficient humidity in the Andalusian climate. Practical experiments on a large scale will be made, and the result is awaited with great interest.

Cuba and Porto Rico formerly supplied Spain with nearly all her coffee, paying the Government a consumption tax of 60 pesetas per 100 kilograms (\$9.60 per 220.46 pounds) on all coffee entering the Peninsula. At present the import duty on coffee is 140 pesetas (\$22.40) per 100 kilograms from all countries except from the Spanish island of Fernando Po, and Spain's supply last year came largely from Valparaiso and other South American ports. Coffee from Fernando Po pays a duty of 105 pesetas (\$16.80) per 100 kilograms.

If coffee can be successfully cultivated in the province of Malaga, it is believed that it will be generally grown throughout Andalusia.

BENJ. H. RIDGELY,
Consul.

MALAGA, *February 8, 1901.*

SPANISH EXPOSITION OF FUEL AND HEATING APPLIANCES.

Consul-General Lay sends from Barcelona, February 22, 1901, translation of prospectus of an exposition of Spanish mineral coal, to be opened on April 30 and closed on June 29 of this year. Mr. Lay adds:

It will be noticed by the prospectus that a special exposition will be held at the same time of different systems of hearths, grates, accessories, and other general appliances, whether native or foreign, for more thoroughly utilizing the fuel. This exposition should be of great interest to our manufacturers, inasmuch as it is the first one of its kind held in Barcelona.

Those intending to exhibit may be glad to know that there is a direct steamer leaving New York for Barcelona every month about the 7th—*Compañía Transatlántica*; agents, Ceballos & Co., New York. From information at hand, I should think their interests would be best served by employing one or more persons here to receive, mount, and display their exhibits. I have written the chairman of the committee of this exposition for further particulars regarding privileges of free entry and space allotted exhibits, which will be forwarded as soon as received.

I have also written the committee to grant American exhibitors the privilege of admitting their applications until the 25th of April and exhibits until the 25th of May, as I have only just heard to-day about this exposition, and there is not sufficient time for this report to be distributed among those interested in the United States and for applications to reach here, nor is there constant direct steamship communication.

The prospectus reads:

EXPOSITION OF SPANISH MINERAL COAL.

With the desire of acquainting manufacturers with the natural wealth of the country in regard to fuel, the provincial council of Barcelona will hold an exposition of Spanish mineral coal, including all from anthracite to peat in all their varieties and comprising also patent fuels and waste products, as also pitch and tar, and those mineral bitumens used in the making of patent fuels.

Exhibits will also be admitted of machinery and appliances directly connected with the coal trade, as also of the products derived from that industry; but these will not be competitive.

At the same time, a special exhibition will be held of different systems of hearths, grates, accessories, and other general appliances, whether native or foreign, for more thoroughly utilizing the fuel.

At least 2 cubic tons of the fuel to be exhibited must be sent, which must faithfully represent the current type and quality obtained in the working.

Intending exhibitors must send applications to the secretary of the "Diputacion Provincial" of Barcelona before the 15th of March next, on forms which will be supplied to them, stating the conditions of the fuel and particulars of the mine, or, in the case of an artificial product, particulars of the works must be given. Exhibits must be received by the committee before the 15th of April.

The charges on machinery and appliances connected with the coal trade, and also those on hearths, grates, and other accessories for the use of fuel, must be defrayed by the sender or exhibitor as far as the site of the exposition, as also the cost of installation and the return of the exhibit.

PRIZES THAT MAY BE AWARDED TO MINERAL FUELS.

Anthracites.—A first prize will be given to the anthracite which, coupled with the highest heating power (not being less than 7,000 temperatures), can show a normal output of at least 10,000 metric tons annually. Two second prizes will also be awarded.

Pit coal.—A first prize will be given to the pit coal that, besides having the greatest heating power (provided this be not less than 6,500 temperatures), combines the best physical qualities, contains fewest impurities, and can show a possible annual output of at least 25,000 metric tons. Two second prizes will also be awarded.

A first prize will be given to the pit coal which, with the highest heating power (not under 6,000 temperatures), combines the best physical qualities, contains fewest impurities, and whose possible annual output can reach 100,000 metric tons or more.

Lignites.—A first prize will be awarded to the lignite which, with the highest heating power (not under 5,000 temperatures), combines the best physical qualities, contains fewest impurities, and can show a possible annual output of 10,000 metric tons or more. Two second prizes will also be awarded.

A first prize will be given to the lignite which, with the highest heating power (not under 4,000 temperatures), combines the best physical qualities, contains fewest impurities, and which can show a possible annual output of 30,000 metric tons or more. Two second prizes will be awarded.

Peats.—A first prize will be awarded to the air-dried peat which, with the highest heating power (not being under 2,500 temperatures), combines the best physical qualities, contains fewest impurities, and whose bogs have an annual capacity of 10,000 metric tons or more. Two second prizes will be awarded.

Patent fuels.—A first prize will be given to the coal bricks which, with the highest heating power and fewest impurities, are the best manufactured, contain the smallest proportion of tar, and have the largest output. A second prize will be awarded as accessory to the foregoing.

Coke.—A prize will be awarded to coke, derived from native mines, which combines the highest heating power with the best conditions of density and purity, and with a possible output of at least 10,000 metric tons.

POTATO EXHIBITION AT BARCELONA.

Consul-General Lay writes from Barcelona, February 5, 1901, in regard to the monographic exhibition of the potato tuber, to be held in that city from May 1 to June 30. Those interested in such matters are asked to send exhibits, which may include systems of production and preservation, as well as uses for food, fodder, etc. The rules of the exhibition are summarized below:

The exhibit will be held in the palace of fine arts of Barcelona.

Space is allotted free, but exhibitors must defray costs of transport and erection of exhibits.

Applications must be made on forms that will be supplied by the secretary of the managing committee,* on which particulars must be given of the space required, if to be isolated or against a wall, and various other details.

Although exhibitors may sell the products or machines exhibited, these may not be removed until after the exposition is closed.

Applications for admission must be made before the 1st of April, 1901, and all exhibits must be ready by the 20th of April, 1901.

Articles exhibited must be removed after the close of the exposition, those that have not been taken away by the 31st of July being considered given to charitable or educational establishments.

A grand prize will be given, as well as gold, silver, and bronze medals, diplomas, and honorable mention.

The committee will arrange agricultural lectures, concerts, and flower shows.

COMMERCIAL USES OF SAWDUST IN EUROPE.

In reply to an inquiry from residents of Ohio,† Consul Covert, of Lyons, under date of January 24, 1901, writes:

Sawdust is not used anywhere in Lyons. I am informed that some twenty establishments in Europe make oxalic acid out of sawdust. There are six in Germany, twelve in England, one in France, and one in Belgium. The sawdust of some wood is better than that of others for this purpose. Yellow and white pine, dried, contain 94 per cent of oxalic acid; oak, 83 per cent.

There is a large planing mill in North Carolina where no fuel is used but sawdust. It is first dampened and then thrown into the furnace.

There must be places in the United States where sawdust has a commercial value. As far as I have been able to learn, the supply is equal to the demand in Europe.

Dr. Harold Fries, 92 Reade street, New York, can give all the information available on this subject.

* Form of application, inclosed by Mr. Lay, has been sent the Department of Agriculture.

† To whom ADVANCE SHEETS of this report have been sent.

Consul Fleming, of Edinburgh, under date of February 23, 1901, transmits the following:

Sawdust is used in Scotland to some extent in making floor cloth and linoleum, certain kinds of heavy stamped or embossed material to be used instead of wall paper, coarse wrapping paper and mill-board, and certain coal substitutes for domestic use. It is also employed (mixed with melted rosin and pressed into squares) in making fire lighters.

Sawdust is not employed in any chemical manufacture here, except to a very slight extent in the manufacture of gunpowder and other kinds of explosives.

The average current price of dry white sawdust is \$2.43 per 2,240 pounds, although as high as \$3.65 has been offered in the past few weeks. The price was formerly about \$1.82, the advance being largely due to the high price of coal, which has caused the mills to use their sawdust as fuel; also to the fact that the value of sawdust as a material of manufacture is beginning to be recognized.

UTILIZATION OF SAWDUST IN CANADA.

There has recently been invented and manufactured in Montreal a machine for the purpose of extracting the products of sawdust. The following information in connection with the invention is furnished by one of the gentlemen interested:

The machine is built for the distillation of sawdust, and consists of two or more cylinders, arranged one over the other, the center of each cylinder being made to revolve. The whole is then incased in an oven and subjected to a strong heat, the gases generated being carried off by three or more pipes to separate condensers, making a division of the products directly from the machine.

It being necessary to expose the sawdust to this heat for a certain length of time, the discharge is so arranged that the speed can be changed if the fires are not in proper condition. The capacity of the machine is about 2,000 pounds of wet sawdust per hour; but by first drying the sawdust with the combustible gases (of which there is sufficient involved to do the heating), its capacity is more than doubled. Two to 4 horsepower is required to work the machine.

In addition to the gases generated, the following products have been obtained from 1,000 pounds of sawdust, viz: Char, 160 pounds; acids, 180 pounds; water, 248 pounds; tar, 162 pounds. No record was kept of the gases, but a test was made of them for heating and illuminating. They were found to be superior to coal gas,

except that they were unpleasantly pungent. This, however, would not have been the case had the gases undergone a purifying process.

This machine was irregular in its action, and had to be emptied of the products; but the inventor has since made a second machine, which is an improvement on the old one. The latter, however, has not yet been patented, though arrangements to that end are now being perfected.

I am informed that, while the acids, tar, and char were the products sought, the gases are undoubtedly of commercial value.

Little is being done with the machine at present, owing to lack of capital, it being estimated that at least \$100,000 will be required to put the enterprise on a paying basis.

JOHN L. BITTINGER,

MONTREAL, *January 31, 1901.*

Consul-General.

IRON AND STEEL INDUSTRIES IN CANADA.

The attention of capitalists is being directed to the possibilities of the iron and steel industries of Canada. A few years ago, the Canadian Government offered a bounty of \$3 per ton on pig iron made from Canadian ore and \$2 per ton on that made from foreign ore. A bounty of \$3 per ton was also offered for steel ingots and \$3 per ton for puddled bar iron made from pig iron manufactured in Canada.

This bounty stimulated the building of iron furnaces, and large steel plants have been built or are under construction at Sydney, in Cape Breton, Hamilton, Sault Ste. Marie, Ontario, Collingwood, and a number of other places.

Mr. A. J. Moxham, general manager of the Dominion Iron and Steel Company, of Cape Breton, Nova Scotia, in a recent address gives figures to show that while it costs \$3.57 per ton of pig iron for assembling the materials for making steel at Pittsburg, the same materials cost only 79½ cents at the Cape Breton mills and \$1.97 at the mills of the Lake Superior Power Company, at Sault Ste. Marie, Ontario.

He shows further that while the mills at Cape Breton are at tide water, the Pittsburg mills must ship to tide water at a cost of about \$2 per ton to reach the European markets, and will then be about 1,000 miles farther from those markets than the Sydney mills.

Mr. Clergues, manager of the Lake Superior Power Company, says that the facilities for making steel here, particularly nickel steel, are most favorable, both iron and nickel ores being within convenient reach of the mills.

GEO. W. SHOTTS,

SAULT STE. MARIE, *February 21, 1901.*

Commercial Agent.

GAS AND ELECTRIC LIGHT IN CANADA.

According to a recent report of the Dominion statistician, the development in the use of electric lamps in Canada during the past ten years has been marvelous.

In 1891, the census gave 80 establishments selling electric light; in 1897, there were 187; and in 1900, 297. The electric lamps numbered 443,897 in 1897 and 807,772 in 1900. The largest establishment in Canada is the Royal Electric Light Company, of Montreal, supplying 78,762 incandescent and 1,805 arc lamps. The next largest is the Toronto Light Company, supplying 75,000 incandescent and 1,650 arc lamps. The Ottawa Electric Light Company, with 77,255 incandescent and 621 arc lamps, also stands well to the front.

The Province of Ontario has made rapid strides in the employment of electricity for lighting, using 418,573 lamps in 1900, against 201,955 in 1897.

The Province of Quebec increased its employment of electric lights from 185,892 lamps in 1897 to 235,322 lamps in 1900. The other Provinces have all developed the use of electricity for lighting purposes in a very satisfactory manner.

In the Province of British Columbia there were two establishments selling light in 1897, with a small number of lamps. The great Province of the west, in 1900, had 13 electric companies, with an equipment of 52,653 lamps, the number of arc lights having increased from 9,516 in 1897 to 11,917 in 1900.

In gas lighting, the census of 1891 gave 49 gas works in Canada; in 1900 there were 43—a decrease of 6. The best average gas supplied in 1900 was in Woodstock, Ontario, where an average of $25\frac{2}{3}$ candlepower was obtained. Deseronto came next, with $22\frac{1}{2}$ -candlepower gas; and Owen Sound third, with nearly 22 candlepower; Ottawa standing fourth. Fourteen gas establishments supplied gas of over 20 candlepower and 29 of under 20.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *February 7, 1901.*

FISHERIES OF CANADA.

The fisheries industry is one of great importance in the Dominion of Canada. The amount of capital invested in the industry last year exceeded that of the previous year by \$289,743, and 719 more men were engaged in the work. No less than 79,863 men were occupied in 1900 in exploiting the waters of Canada, using 5,506,760

fathoms of nets and other fishing gear, representing a capital of \$10,000,000.

The salmon-preserving industry of British Columbia, comprising 69 canneries and representing a capital of \$1,380,000, gives employment to 18,977 hands.

The total catch of fish in Canada for the year 1899, as reported by the fisheries department, amounted to \$21,891,706, being an increase of \$2,250,000 over the yield of the previous year. The catch for the Province of Quebec was worth \$1,953,134, an increase over the preceding year of \$191,694.

The lobster plant alone is estimated to be worth \$1,334,180. It comprises 858 canneries, dispersed on the seaboard of the maritime Provinces.

The sealing fleet last year numbered 37 vessels, an increase of 11 over the previous year and representing an aggregate of 2,641 tons register. The total number of fur-seal skins taken by Canadian sealers during the year 1900 was 35,523. This result is larger by 177 skins than that of 1899, which in its turn largely exceeded the catches of 1898 and 1897. Although the catch of 1900 is slightly in excess of that of 1899, the average catch per vessel would show a falling off if comparison were confined to these two specific years.

Manufactured seal-skin goods have largely advanced in price in the Montreal market, and the profits of retail dealers are said to be very high. They can be purchased in the United States quite as cheaply as here, for the reason that retail dealers there are content with smaller profits.

So far as can be learned, there have been no complaints of transgressions of the law or regulations by the sealers last year; nor have any complications arisen through the application of the law affecting the business.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *February 9, 1901.*

RAILWAY DEVELOPMENT IN NEW BRUNSWICK.

A railway to connect Shemogue, New Brunswick, with the Inter-colonial Railway at Shédiac is being promoted. A survey has been made and the line located from Shédiac to Shemogue, a distance of 20 miles, and it is intended to continue it some 18 miles farther toward Cape Tormentine, on the Northumberland Straits, if a subsidy for the last 18 miles can be secured from the New Brunswick government.

The Dominion Government has granted a subsidy of \$3,200 per

mile for a distance not exceeding 38 miles, which embraces the whole length of the line, while the New Brunswick government has granted a subsidy of \$2,500 per mile for a distance not exceeding 20 miles, which covers the distance as far as Shemogue only.

The proposed railway will run through an agricultural district, practically the whole export of which is potatoes. The farmers have been at a disadvantage in shipping these, owing to the long haul necessary to land them at a railway and the danger of their being damaged by frost during the winter season. These difficulties will be removed by the construction of the proposed railway. In addition to the transportation of farm products, it is thought that a considerable trade can be done in the carriage of frozen smelts, large quantities of which are shipped to the American market.

It is also stated that at Cape Bald there is good, brown sandstone, suitable for building purposes, which is not at present available, owing to lack of railway facilities and the fact that there is no place along the coast in that vicinity suitable for loading cargo into vessels. The quarry is about 1 mile from the proposed station at Cape Bald and will, it is expected, bring considerable trade to the road.

The road will be commenced in the spring and it is thought will be well advanced before the following winter. There will be two bridges of about 100 feet span, one across the Aboushagan and one across the Kouchibouguac rivers, and an arch across the Tidnish River. The alignment is very direct and the sharpest curve is not over 2,800 feet, while most of them are 5,700 feet. From the Intercolonial Railway at Shediac to Cape Bald there are only three curves in the 13 miles. The road will be built of standard gauge under Dominion specifications.

GUSTAVE BEUTELSPACHER,

MONCTON, *February 18, 1901.*

Commercial Agent.

MINERAL DEVELOPMENT OF NOVA SCOTIA.

Consul-General Foster, of Halifax, under date of January 25, 1901, reports that at a recent meeting of the stockholders of the Dominion Iron and Steel Company, a letter from the general manager was read from which the following extracts are quoted as bearing upon the mineral development of Nova Scotia:

The success of the manufacture of steel at this point (Sydney) depends upon the three elements of iron ore, limestone, and coal. We have the ore in the yard at a known cost; we have made the coke, and we have the limestone. There remains,

therefore, only the item of labor not demonstrated. Dealing with the three elements separately:

(1) *Iron ore*.—The developments at Bell Island have bettered the promise. The drill hole put down in the most doubtful portion of the property has shown that the ore at this point exists in a solid bed of great depth, low in silica and high in iron. It is of better quality than we had counted on as a standard. The cost of the ore delivered at our dock on steamer (not unloaded) was only \$1.62 a ton. Our estimate of what it will cost when everything is working smoothly is \$1.25.

(2) *Limestone*.—We have two supplies—Georges River and Marble Mountain. For this winter, we are getting the stone from Georges River at a cost of 60 cents a ton. The Marble Mountain quarry is nearly equipped, and next spring our supply will come from there.

(3) *Coal*.—We have not yet finished the coal-washing plant; nevertheless, we are making an excellent quality of coke in our ovens, using the coal just as it comes from the mines. The indications are for a coke out of washed coal that will be fully equal to the celebrated Connellsville standard; the sulphur will be no higher, the ash lower, the carbon higher, and the physical structure promises to be fully its equal.

The cost of labor will of necessity be heavy at first, as it will take time to bring it up to the ordinary standard of steel working; but, while this is true, it leaves no need of doubt as to the future. The plant we are building is constructed with all modern labor-saving devices and at as low a cost as that of any modern plant in the States.

TARIFF OF VENEZUELA.

Consul Plumacher sends from Maracaibo copy of the new customs tariff (taken from the Venezuelan Herald of November 30, 1900), as follows:

I, Cipiriano Castro, general in chief of the armies of Venezuela and Supreme Chief of the Republic—

Considering that the edition of the import tariff law of 1897 which was ordered to be put into force by Executive decree of the 7th of November last being exhausted, the Government has not been able to furnish it to several public employees who have lately applied for it as necessary for their offices.

Considering that, as a new edition of the said tariff should be made in order to be able to attend to the just demands of those who need it, it is expedient that the various modifications which have been made therein since its promulgation should be incorporated in the said law—

In the exercise of the power conferred on me by laws 6 and 24 of the code of finance, decree:

Goods of foreign origin which are introduced through the custom-houses of the Republic are divided into the following nine classes:

- (1) Goods admitted free of duty.
- (2) Goods liable to a duty of 10 centimes of the bolivar (1.9 cents) per kilogram.
- (3) Goods liable to a duty of 25 centimes of the bolivar (4.8 cents) per kilogram.
- (4) Goods liable to a duty of 75 centimes of the bolivar (14.4 cents) per kilogram.
- (5) Goods liable to a duty of 1.25 bolivars (24 cents) per kilogram.
- (6) Goods liable to a duty of 2.50 bolivars (48.2 cents) per kilogram.
- (7) Goods liable to a duty of 5 bolivars (96.5 cents) per kilogram.
- (8) Goods liable to a duty of 10 bolivars (\$1.93) per kilogram.
- (9) Goods liable to a duty of 20 bolivars (\$3.86) per kilogram.

Class I.—Goods exempt from duty.

- (1) Articles imported by order of the Government.
- (2) Live animals with the exception of leeches.
- (3) Iron boiler plates, bottoms or boilers, gratings, rollers and apparatus for crushing cane, also axles and frames for same and native iron and scrap iron for resmelting.
- (4) Plows and plowshares, hoes, spades, sickles, billhooks and scythes, weeding hooks, hatchets, shovels, picks, "tasies," and cutlasses with or without wooden handles, and matchets for lopping.
- (5) Apparatus and machinery for generating steam by means of petroleum residues.
- (6) Apparatus and machinery for lighting with gas and electricity and for their manufacture, hatching apparatus, carbonate of calcium, mineral coal and carbons for electric light, acetylene gas and trisulphate of lime.
- (7) Barbed iron wire for fences, and also hooks for fastening the same, as shown in the cliché contained in the ordinance of June 13, 1894.
- (8) Fire engines.
- (9) Carriages, accessories and materials intended exclusively for railroads.
- (10) Wood ashes, residues of pressed grapes, guano and every other substance, vegetable, mineral or artificial used as fertilizers and not included in any other class.
- (11) Roman cement and Tileston cement for roofs.
- (12) Personal effects of ministers and those of diplomatic agents of the Republic on their return to the Republic.
- (13) Springs, axletrees, rims and boards for carts and carriages to be constructed in the country.
- (14) Baggage brought by passengers, with the exception of those articles which have not been used, and of furniture which will pay according to the class to which it belongs, subject to a rebate according to the deterioration which it may have suffered from use. The duty leviable on unused articles imported together with baggage shall be increased by 20 per cent, and if they come from the West Indies, they shall pay 30 per cent additional.
- (15) Geographical or astronomical globes, hydrographical or marine charts, maps of all kinds, and lithographed or printed topographical plans of mines.
- (16) Rennet.
- (17) Ice imported into localities where no ice factories exist by permission of the Government.
- (18) Eggs.
- (19) Books printed, unbound or stitched, treating of science, art and trade; catalogues, newspapers and writing copy books for primary schools.
- (20) Wood prepared for shipbuilding, logs of pine, pitch pine for masts and square beams exceeding 25 centimeters, oak or other common wood intended to be sawn into planks, beams, or into any other form.
- (21) Printing presses and typographical accessories, such as type, lines, prepared printing ink, and white printing paper, neither sized nor gummed, also paper paste for manufacturing stereotype plates and alloy of lead and aluminum employed for stereotype printing.
- (22) Machinery for use in agriculture, mines, weaving, sawmills, foundries not otherwise mentioned; also those intended for the arts or trades when the manufacturer imports them himself, and after having justified the use he intends to make of them and having obtained previous permission from the Government. Parts imported for the purpose of repairing sugar mills and agricultural machinery are also in this first class.

(23) Telegraphic machinery and apparatus, with previous permission from the Government.

(24) Steam engines of all kinds and windmills with their accessories, with previous permission from the Government.

(25) Samples of tissues in small strips in quantities not exceeding 25 kilograms in weight, and of wall paper not exceeding 50 centimeters in length; or of all other articles whenever they are imported in such dimensions and in such conditions as to be unsalable.

(26) Legal gold coin.

(27) Platinum and gold and silver unwrought.

(28) Living plants of all kinds; herbariums or collections of dry plants other than medicinal; and seeds for sowing which can not be used for food.

(29) Products of Colombia imported across the frontier of that country provided reciprocity exists.

(30) Bridges with their chains, floors and other accessories, intended for public use or agricultural purposes; otherwise they pay duty on the materials of which composed.

(31) Clocks for public use imported by order of the Government.

(32) When empty glass bottles are imported in boxes which may be used to carry the same number of bottles when filled, the bottles and the boxes shall pay the respective duty to which they are liable under this law.

(33) Articles in which goods exempt from duty are imported, such as trunks, Gladstone bags, portfolios, blankets or cloths which are not thereby deteriorated in value shall be weighed apart and shall pay the duty of the class to which they respectively belong.

Class II.—Duty 10 centimes of a bolivar (1.93 cents) per kilogram.

(34) Sulphuric acid and liquefied carbonic-acid gas.

(35) Bran, oil cake of bran and linseed oat and barley residues for cattle fodder.

(36) Fishhooks and iron wire, galvanized or otherwise not wrought.

(37) Almagra, ocher, chalk, Spanish white, clay, caput mortuum and all earths for building purposes not specified.

(38) Mineral or vegetable tar, asphalt, raw petroleum and bitumens of all kinds except blacking.

(39) Hoops of iron or wood for casks, barrels and sieves.

(40) Mineral water.

(41) Rice in the grain and oats.

(42) Iron bars (as tools).

(43) Common bottles of ordinary black or white glass for bottling liquors, aerated waters and sterilized milk and empty demijohns and square bottles of similar glass, generally used for importing Hollands.

(44) Hydraulic pumps and their pipes, valves and other accessories.

(45) Boats and lighters, whole or in detached pieces and the oars and sails for the same.

(46) Resin, yellow or black.

(47) Hydraulic lime, common lime, and all other similar materials for building purposes not elsewhere mentioned.

(48) Parings and wastes of skins and dried sheep intestines, such as are used by sausage makers.

(49) Hemp or tow, raw or twisted for calking; tarred tow and cotton wastes for cleaning machines.

(50) Conduits or pipes of iron or lead and the joints or connections for said pipes.

(51) Cardboard in the paste and the filtering material used in breweries.

- (52) Waterproof cardboard for roofing and other purposes.
- (53) Carts and wagons.
- (54) Wheelbarrows and fire ladders.
- (55) Barley in the grain.
- (56) Rye and wheat in the grain.
- (57) Coaches, chaises, gigs, omnibuses, phaetons, and all kinds of vehicles not otherwise mentioned.
- (58) Bark of oak, yew and other trees, used in tanning.
- (59) Flour of barley, chick-pease, "DuBarry's Revalenta" and any flour not otherwise mentioned.
- (60) Ice imported into ports where ice factories are established with permission of the Government and machinery for producing it.
- (61) Iron in bars, round or square in plates, sheets, or any other form not worked.
- (62) Bath bricks.
- (63) Bricks, slabs and tiles of baked clay, jasper wood, or any other material for pavements not exceeding 60 centimeters; tiles of clap, slates and all kinds of common unwrought stone.
- (64) Firewood and charcoal in pieces.
- (65) Common wood such as planks, beams, and joists of pine, and other wood neither planed, tongued nor grooved, less than 25 centimeters in thickness and pine wood not specified.
- (66) Maize in the grain.
- (67) Apples, grapes, pears and all other fresh fruits.
- (68) Machinery, reservoirs of galvanized iron and apparatus not specified in Class I, the total weight of which exceeds 1,000 kilograms, and ice boxes.
- (69) Music manuscript, in the form of copy books or half bound.
- (70) Manioc.
- (71) Straw and dried fodder such as hay and other similar fodder for animals, with the exception of medicinal herbs.
- (72) Pitch, common, white, black, or yellow.
- (73) Logwood, guaiacum, Brazil wood, mulberry wood, sandalwood, rose and similar woods in shavings.
- (74) Slates for roofs.
- (75) Slates for billiard tables.
- (76) Slates with or without frames, slate books and pencils.
- (77) Pine resins and all other not medicinal.
- (78) Wheels for carriages, carts and wagons, iron axle boxes for the same and steel wheels fitted on steel axles.
- (79) Epsom salts.
- (80) Glauber's salts and silicate of soda.
- (81) Sienna and black earths for cleaning purposes.
- (82) Tombstones of marble, granite or any other material.
- (83) Wooden laths for roofing.
- (84) Chalk—white in sticks or powder and marble and glass powder.
- (85) Gypsum in pieces or powder and gypsum for casting.

Class III.—Duty 25 centimes of a bolivar (4.8 cents) per kilogram.

- (86) Alimentary oils.
- (87) Kerosene oil, colza oil and all other oils for lighting purposes, not otherwise mentioned and bone oil and so-called "esperma de cristal" oil, for machines.
- (88) Stearin and aleic acids; stearin pure, unworked, and stearin mixed with paraffin, known as trade stearin.
- (89) Acetic, hydrochloric, or muriatic acids; boric acid and borax.

- (90) Nitric acid or aqua fortis.
- (91) Aërated waters and lemonades.
- (92) Steel, bronze, brass, copper, tin, pure or alloyed, lead and zinc, in lumps or rough, in bars, cubes, parings or in perforated or cut-out sheets.
- (93) Orange flowers.
- (94) Spirits of turpentine.
- (95) Knitting needles of steel, wood, bone, caoutchouc, or other similar material.
- (96) Cotton.
- (97) Spike lavender.
- (98) Alum, not calcined, in lumps.
- (99) English yellow or chromate of lead, minium litharge, mineral manganese, white lead and carbonate of lead, astestine.
- (100) Stuffed animals.
- (101) Advertisements in the form of almanacs relating to medicinal or other material products.
- (102) Apparatus for filtering water; telephonic apparatus and adjuncts and covered copper wire.
- (103) Harness and horse collars for use in connection with all kinds of carriages, calashes, coupés, omnibuses and phaëtons and for all kinds of cars, wagons and carts.
- (104) Ground rice, sago, salep, tapioca and crushed maize.
- (105) Sugar, crude or not refined.
- (106) Sulphur, flowers or paste of.
- (107) Scales, Roman balances with their weights other than those of copper or in which copper predominates.
- (108) Excelsior and similar vegetable fibers for sparterie.
- (109) Barrels, pipes and hogsheads put together or not and staves imported separately.
- (110) Wimbles and augers for perforating stones and beams.
- (111) Pottery glazed or not, in any form not otherwise mentioned.
- (112) Zinc, white and white bole.
- (113) Canes, reeds, rushes, palm, straw, not otherwise mentioned and ozier, not worked, for the manufacture of brooms.
- (114) Sporting shots and bullets.
- (115) Cables, rigging and cordage.
- (116) Bowls for tobacco pipes, cigar holders and common clay and faïence pipes not combined with any other material.
- (117) Cannon of all kinds.
- (118) Beans of all kinds, chick-pease, lentils, Spanish beans, and all kinds of pulse, garden produce, and alimentary roots, unprepared.
- (119) Cloth, unbleached and coarse cloth called "coleta" unbleached No. 3, common packing cloth, generally employed for cocoa and coffee sacks and for packing, the color of which, naturally dark, has not been changed by a preparation intended to bleach them, even when with colored stripes and checks.
- (120) Charcoal in powder, animal charcoal and lampblack.
- (121) Meat, salted in brine, or smoked hams or shoulders not in tins, bacon and tongues, with the exception of jerked meat "tasajo," the importation of which is prohibited.
- (122) Packing cloth lined with paper, fine pasteboard or thick office paper for visiting cards and other purposes, including waterproof paper for presses.
- (123) Chloride of lime and cyanide of potash.
- (124) Sieves of iron wire.
- (125) Hair grass and similar vegetable fibers.

- (126) Wax for shoemakers.
- (127) Beer and cider.
- (128) Creoline and disinfectants, liquid or in powder.
- (129) Copper—old and scrap.
- (130) Portable kitchens of iron or other metals.
- (131) Hearses, including the lanterns, feathers, plumes, and all other accessories thereto, even when they are subject separately to higher duties, provided they be imported together with the hearses in the same or in another package.
- (132) Chalk—white or red, in lumps or in powder.
- (133) Crucibles of all kinds.
- (134) Preserves in vinegar other than olives or capers.
- (135) Juniper berries.
- (136) Emery in lumps or in powder.
- (137) Esparto—raw.
- (138) Fuses and quick matches for mines and the lubricating tow for putting together machinery.
- (139) Copper scupper nails.
- (140) Fountains or basins of iron, marble or any other material, and statues, busts, vases and urns of marble, alabaster, granite, or other similar stones.
- (141) Sago flour.
- (142) Biscuits of all kinds without confections.
- (143) Fluid gas.
- (144) Gum arabic.
- (145) Wheat flour and semoline prepared for making paste.
- (146) Tools and instruments, such as hammers, sledge hammers, hatchets, capstans, forges, bellows of all kinds, cranes, "mollejones" large screws for blacksmiths, bickerns, anvils, and other similar tools and instruments.
- (147) Manufactures of iron: Wire and wire netting for mattresses; anchors and chains for vessels, safes, mortars, furniture, copying presses and machines for stamping paper, nails, tacks, hobnails, rivets and scupper nails, buildings not erected or separate parts thereof, such as balconies, doors, balustrades, gratings, columns, roofs, even when imported separately; statues, urns, flowerpots, busts, and all other similar ornaments for houses and gardens; weights for scales, flatirons, posts for fences, stoves, boilers, "budares" kettles, broilers, pots, frying pans, and other household utensils, tinned or not, with the exception of similar articles of sheet iron and tin plate, which pay duty according to Class IV, galvanized-iron nails and washers are also included in this class.
- (148) Tinned plate and sheets of tinned paper used for lining trunks.
- (149) Bones, horns and hoofs not manufactured.
- (150) Cotton, Holland cloth, blue.
- (151) Toys of all kinds and of whatever material, including marbles.
- (152) Books—printed unbound or stitched, not comprised in Class I, pamphlets, copy books, and books intended for primary instruction, imported simply stitched or half bound.
- (153) Emery on paper or linen.
- (154) Linseed or linseed meal and colza seed.
- (155) Flax, raw.
- (156) Earthenware, common and faience, glazed or not, in articles of all forms, not mentioned in other classes.
- (157) Walnut wood.
- (158) Wood, fine for musical instruments, furniture, etc.
- (160) Wood, sawn, planed or dovetailed.
- (161) Lard and butter.

(162) Machines, reservoirs of galvanized iron and apparatus not otherwise mentioned and not exceeding 1,000 kilograms in weight. When machines are imported with extra pieces, which, taken separately, are subject to a higher duty, the whole will be dutiable as machines when such pieces arrive in the same package.

(163) Mills of all kinds not specified in Class I.

(164) Ore of iron, copper and tin, black lead and asbestos

(165) Potatoes of all classes and sizes.

(166) Paper of all kinds not otherwise mentioned and serpentines or paper ribbons.

(167) Fish—pressed, salted or smoked, not in tins.

(168) Lithographic stones, pumice stones, stones of all kinds and forms for grinding or whetting, fireproof stones for blast furnaces, filtering and other similar stones.

(169) Colors—common prepared in oil.

(170) Pianos, even silent.

(171) Saltpeter, saltniter and common or calcined potash.

(172) Leeches.

(173) Sardines—pressed in oil with tomatoes or prepared in any other manner.

(174) Tallow prepared for the manufacture of stearin candles or stearin.

(175) Soda—common or calcined.

(176) Carbonate of soda, crystallized.

(177) Sulphate of iron or green copperas.

(178) Sulphate of copper or blue stone.

(179) Iron wire netting, not otherwise mentioned, and wire hooks.

(180) Turpentine, common or of Venice and paste or extract of logwood.

(181) Poison for preserving skins.

(182) Glass and crystals, plain not silvered, white or colored.

(183) Vinegar, common and empyreumatic, and brandy from the residues of pressed grapes.

(184) Wines of all kinds in casks, pipes or barrels, and red wine, the product of any country, imported in casks, barrels, bottles, demijohns or other recipients. When port wine, even red, is imported in bottles or demijohns it shall be dutiable according to Class IV.

(185) Coffee winnowers.

(186) Sumac, powdered or not.

Class IV.—Goods which pay 75 centimes of a bolivar (14.46 cents) per kilogram.

(187) Linseed oil.

(188) Fish oil, other than cod, and cotton-seed oil.

(189) Palm oil and painters or sicative oil.

(190) Olives, capers of all kinds.

(191) Oil and vinegar cruets, water and wine decanters other than those having any part of gold or silver, which come under Class VIII, and those of German silver, of gilt or silvered which are comprised in Class VI.

(192) Articles of all kinds of steel, iron, copper, brass, tin, tin plate, bell metal, bronze, lead, pewter, zinc and nickel, not otherwise mentioned, whether polished, varnished, stained, or bronzed or not, furnaces for the manufacture of sugar.

(193) Metallic wire manufactured in frames for wigs, bird cages, racks for clothes or hats, and other similar articles, also frames for parasols and umbrellas.

(194) Almonds, hazelnuts, nuts, peanuts, chestnuts and all other dried fruits with shells, not specified.

(195) Stills and all similar apparatus.

(196) Siegert's bitters.

(197) Beneseed, canary seed and millet.

(198) Aniseed, canary seed, Ceylon and Chinese cinnamon, garlic, cumin, origan, pepper, and other kinds of spices.

(199) Chandeliers, globes, shades, candelabra, candlesticks, beacons, street lamps, lamps, lanterns, hanging lamps, etc., except those ornamented with gold or silver which are included in Class VIII, and those of German silver or gilt or silvered which are taxed according to Class VI. Accessories thereof imported with the above-mentioned articles shall pay duty according to the class to which they belong.

(200) Christmas trees.

(201) Jet—manufactured.

(202) Sugar, white or refined.

(203) Scales, Roman balances and copper weights or in which copper predominates, including weights even of iron when imported together with the scales.

(204) Wooden troughs or buckets.

(205) Billiard-table cushions, and bands or belts of coarse oilcloth for steam engines.

(206) Bagatelle tables with all their accessories.

(207) Felt for hats, not fulled, hair for hats, paper wrappers, leather hatbands linings, plushes, peaks for capes and kepis, ribbon of silk or cotton when it comes in pieces of not more than 80 millimeters in width and other articles used exclusively in the manufacture of hats, such as oilcloth prepared with gum-lac dissolved in alcohol, employed in the manufacture of black felt hats, and solutions of said gum in alcohol.

(208) Shoe blacking and bituminous oil for blacking and softening harness.

(209) Billiard tables with all their accessories, including the balls and cloth covers when imported together with the tables.

(210) Armenian and lees of oil and lard and all other fatty substances.

(211) Boxes of wood, even imported in pieces, *i. e.*, in boards for making same.

(212) Baskets, large or small, hand baskets, small carriages for children, and other articles of osier and wicker work, including children's carriages, whatever may be the material from which made; cotton canvas covered with paper, for the manufacture of envelopes and tissue coated with sulphate of copper.

(213) Pasteboard manufactured or prepared for boxes, large and small, or in any other form, excepting for toys, masts and playing cards. Blank visiting cards of any size are also included in this class.

(214) Barley husked or ground.

(215) "Cebadilla" sneezeroor.

(216) Capules for bottles.

(217) Brushes—common, horse brushes, and those of horn or whalebone, for scrubbing.

(218) Wax—vegetable, black or yellow, unprepared.

(219) Bristles and horsehair.

(220) Wooden houses or carousels.

(221) Glue, common and collodion for photographers.

(222) Linen unbleached and cloth called "coleta" crash, unbleached No. 2, linen coarse, also that comprised in No. 119 of Class III, but which has been more or less bleached, including Indian taffeta.

(223) Pointed knives, common, with or without sheaths, knives with handles of wood or other common material for fishermen, large common knives, steel matchets and those knives generally used in the arts and trade.

(224) Varnishes of all kinds.

(225) Caoutchouc made into tube or pipes and in sheets or bands for machine belting.

(226) Oilcloth for floors, packing and roofing.

- (227) Mirrors of all kinds and plate glass silvered.
- (228) Spermatie and paraffin.
- (229) Sea foam, a substance used in the manufacture of bread, and baking powders.
- (230) Mats, large and small and matting for floors.
- (231) Small table mats.
- (232) Figures, ornaments and articles of all kinds used in putting up confectionery, also gilt paper bags or cornucopias, finished or partly finished, imported for the above purpose. Should the receptacles referred to be covered with silk or velvet, or ornamented with flowers or other articles liable to higher duties, they shall, unless completely filled with sweetmeats, be placed under Class VI as fancy articles.
- (233) Carpets or door mats not otherwise mentioned.
- (234) Dried fruits.
- (235) Fruits in brandy, sirup or in their juice.
- (236) Saddletrees.
- (237) Artificial flowers of porcelain.
- (238) Biscuits or crackers in the preparation of which sugar is employed.
- (239) Gasoline and benzine.
- (240) Gelatin of all kinds.
- (241) Potato, maize and rye flour.
- (242) Shoemakers' thread and hemp rope for halters with core of tow.
- (243) Coarse thread of hemp, and twisted lines or twine of the same material for fishing.
- (244) Twine or cord.
- (245) Tin plate or sheet iron manufactured into articles not specified and iron utensils for domestic use when they have lids or covers of tin plates or sheet iron.
- (246) Incense.
- (247) Tools used in the arts and trades, with or without handles, such as pinchers, gravers, compasses, gimlets, trowels, chisels of all kinds for carpenters, levels, gauges, jack planes, awls, files, hammers, saws, tongs and pinchers, laths, and vises, drawing knives, planes, bits, bit stocks, and other similar articles, together with the wooden boxes containing any of these instruments.
- (248) Colored chalk for tailors.
- (249) Sirups of all kinds other than medicinal, confectionery of all kinds, sugar candy and flavored rice flour employed for sweets.
- (250) Sealing wax in cakes or sticks.
- (251) Roots—raw, coarse and medicinal, sailcloth of hemp or cotton unbleached.
- (252) Condensed milk.
- (253) Books printed and bound, except those mentioned in Class VIII.
- (254) Faience in imitation of porcelain.
- (255) Porcelain—common, and china in any way not specified.
- (256) Hops.
- (257) Wood manufactured into articles not otherwise mentioned.
- (258) Duplicators.
- (259) Furniture of iron and wood.
- (260) Marble, jasper, alabaster, granite and other similar stones, wrought or polished in articles not otherwise mentioned.
- (261) Maizena.
- (262) Wicks and twists for lamps and lamp and chimney cleaners.
- (263) Mustard in the grain or in powder.
- (264) Furniture of common wood, osier and straw or cane.
- (265) Organs and all kinds of parts thereof imported separately.

- (266) Ostein and oleomargarine.
- (267) Wood in strips for making matches.
- (268) Wooden colts covered with flax.
- (269) Paste or mastic for polishing and that used for the tips of billiard cues.
- (270) Wall paper, including black and asphalt paper.
- (271) Composition imitating porcelain, marble, granite, or any fine stone, in all kinds of articles, except toys for children.
- (272) Paper for cigarettes not otherwise mentioned.
- (273) Flints, touchstones, polishing and similar stones not included in the other classes.
- (274) Hides, neither tanned nor prepared.
- (275) Shovels made altogether of wood.
- (276) Solders.
- (277) Leather tips for billiard cues.
- (278) Cheese of all kinds.
- (279) Sacks—empty, of canvas, oznaburg, unbleached and thick linen or other similar fabrics.
- (280) Sausages, hams in tins, fish in tins, alimentary preserves, mushrooms, dried or in sauce; lacteous flour and all other similar provisions, prepared or not included in the preceding classes, such as Buitoni's agglutinated paste.
- (281) Sauces of all kinds and pickles in mustard.
- (282) Tallow—raw, rendered or pressed and ordinary fats of all kinds for making soap.
- (283) Siphons and machines for making aerated waters.
- (284) Sole leather, dyed or not, not worked and hempen soles for sandals (alpargatas).
- (285) Piano stools of whatever material.
- (286) Talc in sheets or in powder.
- (287) Horsehair fishing lines.
- (288) Meat covers of wire gauze.
- (289) Stoppers with heads of metal, glass, crystal or porcelain.
- (290) Tissues of cotton, hemp, esparto or flax for floor coverings, even when mixed with a small quantity of wool, and horsehair tissues for covering furniture.
- (291) Canvas prepared for oil paintings and stumps for drawing.
- (292) Tissues—common, of hemp, flax, or cotton, for furniture, in bands, belts or any other form and cotton dishcloths for domestic use and straw ribbon for packing.
- (293) Wooden heels, shod or not with copper or iron.
- (294) Strips of tinned stuff or paper for shoemakers of 1 centimeter in width and 12 centimeters in length.
- (295) Bootjacks and corkscrews.
- (296) Chalk in sticks, lumps or other form for billiards.
- (297) Blinds, venetian, etc., for door and windows.
- (298) Firecrackers called "triquitraqs" and the fuses for rockets.
- (299) Rubber tubes and hose and bands for machinery.
- (300) Sails of coarse twilled cloth for vessels.
- (301) Tallow candles.
- (302) Bicycles.
- (303) Glass and crystal, manufactured, in any form not elsewhere mentioned.
- (304) Wines of whatever origin, when imported in demijohns or bottles, excepting red wines, which are taxed according to Class III. Port wine, even red, imported in demijohns or bottles shall be included in Class IV.
- (305) Articles of gypsum of all kinds, excepting toys.

Class V.—Goods which pay 1.25 bolivars (24 cents) per kilogram.

(306) Oil of sesame, linseed oil, castor oil, oil of almonds, cod-liver oil, and all others not otherwise mentioned.

(307) Perfumed oils and soaps.

(308) Arsenic.

(309) Tartaric acid in powder.

(310) Liquid ammonia.

(311) Toilet waters and hair wash such as "florilina" and the like and waters for cleaning metals.

(312) Spirits of all kinds, brandy or cognac and its essences, absinth, gin and its essences of 22° Cartier; above 22° they shall pay proportionally; bitters not otherwise specified, such as the elixir bitter of cocaine are included in this class.

(313) Peeled almonds.

(314) Apparatus for measuring hats.

(315) Photographic apparatus and the tools used for making same, not included in other classes.

(316) Shapes of gummed stuff for hats and caps.

(317) Rings and buckles covered with leather.

(318) Strops and fine stones for sharpening razors and razor paste.

(319) Saffron.

(320) Quicksilver.

(321) Trunks, traveling sacks, bags, valises and portmanteaus of all kinds.

(322) Skins for carrying wine and purses and small bags of oilcloth for grain samples.

(323) Bandages, bougies or probes, trusses, lint, strainers or filters, sucking bottles and nipples, breast pumps, cupping glasses, anodyne necklaces, spatulas, lances, retorts, clysters, syringes of all kinds and siphons not otherwise mentioned.

(324) "Bramante" (unbleached tissue), "brin" ticks, drills, domestic cloth, "liencillo," "platilla," "warandol" or Irish linen, unbleached, of linen or cotton, and other similar unbleached tissues, including those with colored stripes or patterns, provided that the ground be unbleached, and Holland of black or blue thread.

(325) Brushes and paint brushes of all kinds.

(326) Hat cases of leather.

(327) Almanacs of all kinds.

(328) Camera obscura or camera lucida, for drawing or photography, and other similar apparatus.

(329) Cotton canvas for embroidering, and canvas of unbleached thread similar to the light tissues used for mosquito nets.

(330) Capsules, sacks or bags of paper, of all kinds and sizes, with or without inscriptions, for pharmaceutical purposes.

(331) Tortoise shell, crude.

(332) Homespun linen, white linen called "coleta," "lienzo de rosa," camel's-hair cloth, cotton cretonne and linen cretonne, called unbleached German dowlas Nos. 9, 10, and 11, lining (crehucla), striped or checked, colored or not, and all other similar tissues not mentioned in other classes.

(333) Sieves of copper wire, of leather, wood or horsehair.

(334) Brushes for the teeth, hair and clothes and all others except those included in the fourth class.

(335) White wax, pure or mixed, not wrought, and mineral wax.

(336) Bristles for shoemakers.

(337) Fish glue and liquid glue for shoemakers.

(338) Colors and paints, not otherwise mentioned, such as blueing, ultramarine and "kalsomine," and paints prepared with oil to be used for enamel.

(339) Cork in sheets, stoppers, and in any other shape.

(340) Lasting for uppers of shoes.

(341) Amethyst (quartz).

(342) Cubebs.

(343) Penknives, razors, scissors, and "jackknives," table knives and forks, except those which have handles of parts of gold or silver which belong to the eighth class and those gilt or silvered which are included in Class VI.

(344) Cords, single or wound with thread "entorchados."

(345) Beer, concentrated.

(346) Sassafras and all other medicinal barks.

(347) Cotton drills, white or colored, and cotton flannel, white or colored, also cotton drill called "casinette" and cotton batiste and the fulled cloth used for towels, bath or hand.

(348) Drugs, medicines, and chemical products, not otherwise mentioned; also all vermifuges or medicinal articles or substances, such a bicarbonate of soda, beef wine, cardamom seeds and plants.

(349) Oilcloth of all kinds, not otherwise mentioned, except those included in Class IV.

(350) Cotton buckram.

(351) Brooms, large and small, and horsehair brooms.

(352) Essences and extracts of all kinds, not otherwise mentioned.

(353) Sponges.

(354) Stereoscopes, cosmoramas, panoramas, magic lanterns, and other similar apparatus.

(355) Paper lanterns, paper collars, fronts and cuffs, including those lined with stuff, paper ribbon, and manufactured paper not otherwise mentioned.

(356) Foils, masks, breastplates and boxing gloves.

(357) Phosphorus in paste.

(358) Photographs.

(359) Cotton blankets.

(360) Woolen blankets, white or with colored fringes, and dark blankets of goat's hair "cabrin."

(361) Gum lac, copal, and all kinds of gums and resins not otherwise mentioned.

(362) Horsehair gloves.

(363) Glycerin.

(364) Ordinary sewing thread, untwisted thread for embroidering and thread of one end for weaving.

(365) Loadstone.

(366) Figures and statuettes other than those of gold or silver and mechanical manikins of life size.

(367) Musical instruments and boxes, and all accessories thereof, excepting organs and pianos.

(368) Surgical, dental, anatomical, mathematical, and other scientific instruments not elsewhere mentioned.

(369) Soap, white, marbled, called "Castille" or "Marseilles."

(370) Soap, common, soap in powder, and rock salt for animals.

(371) Sets of chessmen, draughts, dominos, roulette and similar games and playing cards of all sorts.

(372) Pictures and engravings on paper.

(373) Blank books, crayons and charcoal pencils for drawing, notebooks and portfolios, lithographed receipt and check books, pencils of all kinds, except slate

pencils, rubber erasers, wafers and stamps for letters, writing ink and ink powder, paper knives, pencil cases, sealing wax and wafers, sand, steel pens, penholders, inkstands, and all other stationery articles, with the exception of envelopes and articles containing gold and silver.

(374) Books containing gold or silver leaf, whether real or imitation, for gilding or silvering; bronze in powder and books for bronzing.

(375) Liquor stands, empty or with liquor.

(376) "Liencillo," "brin" and domestic tissues, linen or cotton.

(377) Iron filings.

(378) Striped tissues, "arabias," gingham of linen or cotton, common, that is such as have only thirteen strands in the warp or woof of each square of 5 millimeters.

(379) Wooden battens, moldings and cornices, painted, varnished, gilt or silvered, and wooden curtain loop holders.

(380) Colored cotton duck.

(381) Sweet liqueurs, such as cherry cordial, creams of vanilla, cocoa and the like.

(382) Madapolam, Hollands, Brittany, domestic, sheeting, Irish, white or colored, cretonne, "lefante," "platilla," "liencillo," Rouen, calico, "savage" of cotton and other similar tissues.

(383) Frames of any material, with or without glasses, portraits, pictures and engravings.

(384) Masks of all kinds.

(385) Macaroni, "tallarines," vermicelli, and other similar alimentary pastes.

(386) Tape measures of leather, linen or paper, with or without cases.

(387) Furniture of fine wood, such as violet wood, mahogany, rosewood, walnut, and that with backs and seats upholstered with horsehair, wool, cotton, or silk, furniture of common gilt wood and coffins of all sorts.

(388) Gallnuts, nutmegs and mace.

(389) Shades of paper, metal or tissue.

(390) Gum pastilles or drops.

(391) Perfumery of all kinds, unperfumed books of powdered paper.

(392) Parchment and imitations of the same, in articles not otherwise mentioned; cloth only used for bookbinding, and waterproof tissues of taoutchouc and cotton used for blankets and overcoats and cotton felt for lithographic machines.

(393) Aërometers and liquor gauges of all kinds of alcoholometers.

(394) Paintings, chromos, drawings, and portraits on canvas, wood, paper, stone or other materials; lithographed advertisements applied on cardboard, and christening cards with colored landscapes or figures.

(395) Tissue paper.

(396) Bottle and glass stands.

(397) Gunpowder.

(398) Tobacco, plug and twisted chewing tobacco.

(399) Tannin.

(400) Tea and vanilla.

(401) Indian ink for making hair dyes, and all other kinds of ink not otherwise mentioned.

(402) Candles of spermaceti, paraffin, composition, or stearin, and twisted wicks for the same.

(403) Dowlas warandol, unbleached, of linen or cotton, even with colored stripes or flowers, also that with a lead-gray or light-yellow ground.

(404) Tinder boxes and flints or wicks for tinder boxes.

Class VI.—Duty 2.50 bolivars (48.2 cents) per kilogram.

(405) Bugles and beads of glass, porcelain steel, wood, or of any other material, excepting gold and silver, coffin ornaments, fancy articles of glass or porcelain mounted in gilt or silvered metal; artificial plants of caoutchouc, paper or tissue, representing palms, begonias and large leaves, and sweetmeat boxes covered with silk or velvet or ornamented with flowers or other articles liable to higher duties than those levied under Class IV.

(406) Steel hoops for crinolines or bustles, covered or not with tissue.

(407) Damasks, drills, Brittany cloth, unbleached cloth, "bramante," ticks, dowlas, excepting unbleached German dowlas Nos. 9, 10 and 11, specified in Class V, "estopilla," "estrepe," "garantido," Irish linen, "florete," "platilla," Rouen, calico, white or dyed dowlas, warandol of linen, pure or mixed with cotton.

(408) Pins, needles, eyelets, hooks and eyes, clasps, hairpins, hooks for clothes and shoes, zinc clasps for shoes, buckles for hats, waistcoats, trousers and shoes, except those of gold or silver.

(409) Carpets in the piece or rugs.

(410) Vests, scarfs, bonnets, socks, drawers, trousers, stockings, and slip bodices of cotton, knitted, and like tissues.

(411) Spectacles, opera glasses, telescopes, eyeglasses, magnifying glasses, and microscopes, except those of gold or silver, but not including glasses and lens, etc., imported separately.

(412) Whalebone and its imitations.

(413) Basil and tanned skins, not manufactured, except the white or colored leather which belongs to Class IV.

(414) Barometers, hygrometers, chronometers, octants and other similar instruments, and compasses of all classes.

(415) Canes, and canes loaded, whips and slung shots, with the exception of sword sticks or sticks containing a mechanism for firing, which are included in Class VII.

(416) Buttons of all kinds, excepting those of silk, silver or gold.

(417) Baize or ratteens, in piece or plaids, and blankets made of these materials.

(418) Bowls for pipes, cigar holders and pipes, of amber, porcelain, and any other material except those of gold or silver and those mentioned in Class III.

(419) Shaving boxes with accessories, work and traveling cases.

(420) Shells even made up into ornaments.

(421) Pocketbooks, cigar and cigarette cases, cardcases, purses, tobacco pouches, spectacle cases, match boxes, albums, not covered with velvet, nor gilt nor silvered, and all other similar articles except those which have gold or silver.

(422) Wax, manufactured into articles of all kinds, except toys.

(423) Counterpanes, sheets, plaids, hammocks, table covers, of linen or cotton.

(424) Elastic for shoes.

(425) Coral in articles of all kinds, except when set in gold or silver.

(426) Funeral wreaths and other funeral articles.

(427) Thin cord for weaving and all other twisted thread in the shape of cord, such as binding or sail thread, white or colored, which can not, on account of its elasticity, be assimilated to cord and can be used in the manufacture of hand or machine made tissues.

(428) Crinolines, bustles, and similar articles, and caoutchouc dress shields covered or not, used inside of ladies' clothing.

(429) Knives and forks with German or white metal, or silvered or gilt.

(430) Mattresses, pillows, paillasses, and cushions, except those of silk, feathers for stuffing them, and woven-wire mattresses.

(431) Cotton cords for hammocks.

(432) Damasks, "coqui," bombazine, "bordon," padding, ticking, "mahon," nankeen, light nankeen, "estrepe," quilting, sateen, "tangep" or stiff muslin, of cotton, white or colored and other similar cotton tissues not mentioned in the other classes.

(433) Dynamite.

(434) Thimbles, except those of gold or silver, and artificial teeth and eyes.

(435) Shirts, petticoats, dressing gowns, nightdresses, and chemises of cotton, made up or cut out, and cotton stuffs shaped for shirts, with or without embroidered bands.

(436) Articles of German or white metal or its imitations, such as trays, dishes, curbs, bits, muzzles, spurs, stirrups, hinges, buckles, chandeliers, lamps, candelabra and other similar articles.

(437) Articles of iron and other similar metals, gilt or silvered, with the exception of stationery, which will always be included in Class V, even when gilt or silvered.

(438) Yarns, worsted, raw, and of goats' hair.

(439) Cases containing small articles of steel, copper, or other metals, for cleaning the teeth and nails.

(440) Brooms and brushes of palms, rushes or other vegetable fibers.

(441) Felt in pieces for saddle cloths.

(442) Blankets or quilts of pure wool, or mixed with cotton, and with ground of one or more colors.

(443) Tissues of slippers, excepting of silk.

(444) Elastic for shoes.

(445) Gutta-percha, manufactured or not, and elastic shoes.

(446) Imitation gold or silver thread, purl, spangles, tinsel, leaf, foil, galloons, trimmings, small wares, and other articles of imitation gold or silver, for embroidering or sewing.

(447) Bone, ivory, mother-of-pearl, real and imitation, jet, real and imitation, tortoise shell, caoutchouc, india rubber, sheets of celluloid, horn and talc, manufactured in articles of all kinds not otherwise mentioned, with the exception of children's toys comprised in Class III, and those combined with gold and silver, which are included in Class VIII.

(448) Table cloths, towels, and napkins of all classes.

(449) Sheeting of pure linen or mixed with cotton.

(450) Hands, keys, springs, spirals, and other parts of watch and clock movements, excepting those of gold and silver.

(451) Wicks, and cotton slightly spun for wicks.

(452) Cotton handkerchiefs.

(453) Paper, gilt or silvered, paper stamped in relief, and colored paper for artificial flowers.

(454) Umbrellas, sunshades, and parasols, of wool, linen or cotton.

(455) Imitation pearls and stones, not set, or set in any metal except gold or silver.

(456) Rice and other toilet powder, such as Persian snail shell calcined. Powder puffs also belong to this class.

(457) White metal or German silver, in articles of all kinds not otherwise enumerated.

(458) Goose quills prepared as toothpicks.

(459) Feather dusters.

(460) Imitation jewelry.

(461) Table or wall clocks, alarm clocks, water clocks, hourglasses, and all other

similar articles, with the exception of watches and tower clocks imported by the Federal Government.

(462) Hats, caps, hat frames and bonnets, of straw or its imitations, not trimmed.

(463) Patent leather, not manufactured.

(464) Tobacco, raw or twisted for chewing, and cigarette paper whether in bobbins or in the form of Egyptian cigars.

(465) "Dowlas," warandol, white or of linen, or of linen mixed with cotton.

(466) Chintz, nainsook, calicoes, cretonnes, carlancanes, paper cambrics, fine French striped cloth, and other fine tissues, which have more than thirteen threads in the woof, in a square of 5 millimeters, poplins, "malvinas," Japanese cloth, lustering, colored percales and any other cotton cloths, colored, similar to the above, and not otherwise mentioned under different classes, such as cotton mérinos, etc.

Class VII.—Goods which pay duty of 5 bolivars (96.5 cents) per kilogram.

(467) Fans of all kinds.

(468) Undershirts of wool or mixed with cotton.

(469) Opera cloaks.

(470) Sword sticks and sticks with a mechanism for firing.

(471) Purses of linen or cotton.

(472) Stockings, socks, fringes, tassels, laces, ribbons, bands, tapes, trimmings, plushes, caps, mantles, capes, waistbands, bows, epaulettes, list shoes, gloves of wool or of wool mixed with cotton.

(473) Boots and shoes only cut out or without soles, and rugs of sheepskins.

(474) Shirts, made up, of cotton without linen.

(475) Woven uppers for sandals.

(476) Rugs, carpets, and all other articles of crochet, except those of silk.

(477) Chasubles, viaticum cases, altar cloths, bands, and other ecclesiastical vestments and church ornaments.

(478) Cigarettes of paper or maize leaf.

(479) Cravats of cotton, hair or wool.

(480) Curtains, hangings, and mosquito nets, of linen or cotton.

(481) Braces, corsets, slip bodices, corset covers, and garters of all kinds.

(482) Skirts, dressing gowns, nightgowns, petticoats, pillow slips, and blouses of linen, or of linen mixed with cotton, excepting those of linen cambric or of cambric mixed with cotton, which are comprised in Class VIII.

(483) Lace, embroidered bands, edgings, ribbons, borders, epaulettes, tassels, cords, fringes, scarfs, braids, gloves and trimmings, of linen or cotton.

(484) Swords, sabers, daggers, fine hunting knives, blunderbusses, pistols, revolvers, guns, muskets, rifles, war guns, carbines and other fine arms for artillery and infantry, including projectiles, percussion caps, nipples, gunlocks, cartridges loaded or empty, and everything relating to side or fire arms, and compressed air guns.

(485) Pyrotechnic or Bengal lights.

(486) Fireworks.

(487) Horse cloths and blankets of all kinds.

(488) Stockings of linen, or of linen mixed with cotton, and those of Scotch twisted yarn.

(489) Shot bags, powder flasks, cap boxes and game bags.

(490) Muslins, crépons of cotton, colored, lawn, cotton gauze called "rengue," barege, grenadine, organdy, zephyr, very fine linen cloth called "clairn dulce," "sueño" tarlatan, "imité," batiste of Holland, cotton batiste white or colored, plain, worked, transparent, or embroidered, in pieces or cut out for dresses, and all other tissues similar to the above and not included in other classes.

(491) Muslins and batistes of linen, or of linen mixed with other materials, unbleached or colored, in pieces or cut out for clothes.

(492) Cotton velvet (planilla), cotton plush and imitation velvet, in pieces or ribbons.

(493) Fine and common woolen cloth, cassimere, bassinette, muslin, satin, knitted goods, flannel, "lanilla," bombazine, alpaca, crape, merino, serge, lasting, damask, and all other tissues of wool or of wool mixed with cotton, not mentioned in other classes, unless made up into wearing apparel, which would bring them under Class IX.

(494) Shawls, foulards and scarfs, large and small, of muslin, lawn, knitted goods, or other fine cotton tissues, and tissues made of same, or of cotton mixed with this fiber.

(495) Handkerchiefs, tablecloths and undershirts, of wool, or of wool mixed with cotton, neither ornamented nor embroidered with silk.

(496) Umbrellas, sunshades, and parasols of silk, or of silk mixed with wool or cotton.

(497) Skins, tanned, manufactured in any shape, not mentioned in other classes.

(498) Guipure or tulle, of cotton or pita.

(499) Saddles, headpieces, gun cases and pistol holsters, reins, girths, cruppers and sheepskin horse covers of all kinds.

(500) Tobacco, raw, and tobacco stalks.

Class VIII.—Duty 10 bolivars (\$1.93) per kilogram.

(501) Ornaments and nets for headdress of all kinds.

(502) Human hair and its imitations, worked or not.

(503) Shirts, made up, of linen or wool, of cotton with parts of linen; trousers, jackets, blouses, waistcoats, drawers, coats, overcoats, vests, and all other ready-made clothes, of linen or cotton, for men, not mentioned in other classes.

(504) Collars, shirt fronts, and cuffs, of linen or cotton, for men and women.

(505) Hammocks, netted of all kinds.

(506) Skirts, petticoats, pillow slips, and chemises, of batiste or light linen tissue "clarin," pure or mixed with cotton.

(507) Flowers and fruits, artificial, not otherwise mentioned, and materials for making flowers, with the exception of colored flowers, comprised in Class VI.

(508) Skin gloves, with the exception of boxing gloves.

(509) Dutch batiste, light tissue "clarin," knitted goods, zephyr, lawn, tarlatan, muslin and all other fine linen or cotton tissues, made up into articles such as frills, ruches, infant's cape, skirts, cuffs, chemisettes, and other similar articles and adornments not mentioned in other classes.

(510) Precious stones, pearls, and jewelry, articles wholly or in part of gold or silver; watches of any material, empty watch cases, jewelry cases and the like, even imported separately.

(511) Books and albums bound, in velvet, silk, mother-of-pearl, tortoise shell, ivory, Russian leather, with ornaments gilt or silvered.

(512) Handkerchiefs of linen or of linen mixed with cotton.

(513) Bookbindings imported separately, and removable book covers.

(514) Feathers for hats and bonnets, and other similar uses, and hearse plumes, imported separately from the hearses.

(515) Silk, pure or mixed with other materials, and tissues of other materials mixed with silk.

(516) Cloths or tissues of all kinds, mixed or embroidered with gold or silver, real or imitation, except ornaments for the church and priests which belong to Class VII.

(517) Stuffs and tissues of wool mixed with cotton, made up as mosquito nets, hangings, curtains, and other articles not elsewhere mentioned.

(518) Tobacco, manufactured and prepared in any form, not otherwise mentioned. To this class belong cigarettes with tobacco wrapping.

Class IX.—Duty 20 bolivars (\$3.86) per kilogram.

(519) Placards, show cards, and handbills, printed or lithographed.

(520) Cigarette wrappers.

(521) Circulars, printed or lithographed.

(522) Labels of all kinds, printed or lithographed, which are not attached to any article, printed visiting cards, with or without colored designs.

(523) Fine and common cloths, cassimere, satin, knitted goods, flannel, alpaca, "cambron," bombazine, serge, lastings and damask of wool, or of wool mixed with cotton, made up as men's clothing.

(524) Envelopes of all kinds, finished or only cut out.

(525) Hats, bonnets and caps, trimmed, of every kind, for women and children.

(526) Hats of black silk plush, with high crowns, and similar hats of any material, including opera hats, hats simply cut out, hats of fullled felt, and all other kinds of hats, wholly or partially finished, excepting those of straw or their imitations.

(527) Advertisement cards, (large), printed or lithographed.

(528) Tarlatan, silk, wool, batiste of Holland, light tissue "clarin," zephyr, lawn, muslin, and all other tissues of linen or cotton, made up into ladies' wearing apparel.

(529) Men's clothing of wool, linen or cotton, with the exception of that mentioned in other classes.

ART. 2. All customs duties shall be levied on the gross weight, in bolivars and centimes of the bolivar.

ART. 3. The importation of the following articles is prohibited.

Cocoon oil, starch, indigo, cocoa, coffee, molasses from sugar, and honey, salted jerked meat (tasajo), salt, sarsaparilla roots, spurious gold coin, and silver money, apparatus for coining money, unless imported by the Government mint.

Sole paragraph.—Should the Executive Power deem it expedient to authorize the importation, through the custom-houses of the Republic, of any prohibited article, it shall fix the duty to be levied on such article, and report to Congress at its first session.

ART. 4. The Executive Power may totally or partially prohibit the importation of any kinds of tissue, ready-made wearing apparel, hats, bonnets, and caps, and debar entry thereof through the custom-houses of the Republic, if the industries and manufactories in districts producing goods of the above description have, in importance and development, reached a sufficient degree to meet the demands of consumption, provided that purchasers do not suffer in consequence of such prohibition.

ART. 5. For the importation of dutiable firearms through the custom-houses of the Republic, as well as of powder, shot, cartridges, caps, primers, flints, saltpeter, and all other explosive materials not mentioned in the present law, a special permission or order from the General Government is necessary.

Sole paragraph.—Arms of precision and all war articles exclusively intended for the arsenals can only be imported by the National Government.

ART. 6. For all articles mentioned in the tariff the material from which they are made will not be considered, the class under which placed being solely taken into account. Hence trusses, syringes, clyster pumps, toys, masks, spectacles, portfolios, cardcases, and all other articles mentioned pay the duty of the class to which they belong, whatever be the material from which manufactured, except

when they are partially made of gold or silver, in which case they are comprised in Class VIII.

ART. 7. Packages containing samples of tissue in small pieces or samples of wall paper weighing more than 25 kilograms shall, for the weight exceeding 25 kilograms, pay the duty stipulated in Class III.

ART. 8. When goods or products subject to import duties are imported, such goods being unknown in the country and not specified in the tariff nor in the latest resolutions of the Ministry of Finance, the importers can state this fact in their manifests and address a petition to the Government, accompanied by a sample of the goods or products, to permit the proper denomination or classification thereof.

ART. 9. Machines, tools, and other mining apparatus can enjoy the exemption from import duties but once for each mining company, and the extra parts imported to replace the same shall not enjoy this exemption.

ART. 10. Maritime custom-houses, can not, without previous order from the Ministry of Finance, authorize the importation of machines and apparatus comprised in Nos. 6, 21, 22, and 23 of the tariff, nor of artificial objects of a monumental character. To obtain this order, the interested party must in every case address a petition, previously examined by the respective custom-house, to the Minister of Encouragement, requesting the free entry of the articles.

ART. 11. Unused foreign articles which travelers import with their luggage shall, in addition to the duties leviable thereon under the tariff, be liable to a surtax of 20 per cent.

ART. 12. The Executive Power is authorized to increase, decrease or abolish any of the duties of the present tariff, leviable on alimentary products of primary necessity, subject, however, to reporting to Congress the measures which it deems proper to take.

ART. 13. Should unfitted articles be imported in one sole package or in different packages, they shall be liable to the duties applicable thereto when imported in a fitted condition.

ART. 14. The Executive decree of the 7th November last ordering to be put into force the customs tariff promulgated in 1897 and all subsequent resolutions relating to the tariff to be imposed on foreign merchandise are hereby repealed.

ART. 15. The Minister of Finance and Public Credit is charged to see to the execution of this decree.

Given, signed by my hand, sealed with the seal of the National Executive and countersigned by the Minister of Finance and Public Credit, the 10th day of October 1900—ninetieth year of independence and forty-second of federation.

CIPRIANO CASTRO.

DUTIES IN THE CANARY ISLANDS.

In my report of July 20, 1900,* I stated that the Spanish Government had given the provincial deputation the right to collect a duty on the following articles: Wheat, millet, maize, oats, rye, barley, and all flours made from these cereals.

These duties were to be used in liquidation of a loan of 500,000 pesetas which the Canary Islands had received from the Spanish Government.

This loan has been paid, and the articles specified will now be

* See ADVANCE SHEETS No. 816 (August 24, 1900); CONSULAR REPORTS No. 243 (December, 1900).

admitted free of duty. The only tax remaining is the octroi, which is as follows: Cereals (wheat, maize, corn, oats, rye, etc.), per 100 kilograms, 2 pesetas and 5 per cent, equal to 2.10 pesetas; cereals manufactured into flour, 2.40 pesetas per 100 kilograms and 5 per cent, equal to 2.52 pesetas; which, according to the rate of exchange to-day, makes same in weight and United States gold coin, namely, cereals, 31 cents per 220.46 pounds; cereals, manufactured, 37 cents per 220.46 pounds.

SOLOMON BERLINER,

TENERIFFE, *January 25, 1901.*

Consul.

BRAZILIAN TARIFF CHANGES.

Consul Furniss sends from Bahia, January 8, 1901, translation of such sections of the "revenue law" passed by the Brazilian Congress December 26, 1900, as may be of interest to merchants, shipmasters, and others doing business with Brazil. The consul adds:

This law went into effect January 1, 1901, but by special decree the Minister of Treasury has extended for two months the enforcement of that portion of the law contained in article 21, requiring "all labels or articles of foreign manufacture, printed all or in part in Portuguese, to state the country of origin." Certified consular invoices are now required with all imports, and it would be well for our merchants to make their invoices in accord with the official nomenclature, copies of which can be seen in all Brazilian consulates.

By article 2 the President is authorized to make effective the following:

IV. To lease or sell Government railroads to the best advantage and apply the sum received to financial reorganization.

V. To adopt a differential tariff in favor of one or more imported articles in compensation for concessions to Brazilian produce, or most-favored-nation treatment, and vice versa.

IX. To recover from shipping a duty of 1 to 5 reis paper per kilogram of merchandise loaded or discharged, to be expended in improvements of the respective ports.

X. To organize the inspection of all insurance companies and charge each with a share of the cost.

XV. To lease the working of monazite sands found in national territories.

It is further enacted as follows:

ARTICLE 5. The 15 per cent of the duties paid in gold on imported merchandise is raised to 25 per cent, of which 5 per cent shall be reserved for the fund in guaranty of the currency. Instructions shall be given to the different custom-houses to recover the money in paper and gold in such a manner that the total shall not exceed 139 per cent of the duties, on the basis of 7½d. (15.2 cents) paid in January, 1900, until exchange reaches 10½d. (21.2 cents). From 10½d. upward, the duties

shall be received without any rebate—*i. e.*, 75 per cent in paper and 25 per cent in gold.

ARTICLE 8. All vessels calling at Brazilian ports exclusively for orders shall be subject to a single fixed tax of £2 (\$9.73) irrespective of their tonnage, and shall be permitted to remain ten days under supervision of the customs authorities and shall be allowed to receive provisions, water, coal, etc. In this tax shall be included customs and other dues of every kind to which shipping is subject. The ten days may be extended by the customs inspector five days only, except in case of force majeure, after which vessels will be subject to the ordinary regulations.

ARTICLE 9. The stamps corresponding to class 2, paragraph 3, and item 3 of Schedule B of the regulations approved by decree 3564 of January 22, 1900 (*i. e.*, a stamp of 300 reis=4.8 cents), shall be applied to only one copy of bills of lading—*i. e.*, to the original, or, in case of loss, to that presented to the custom-house for dispatch.

ARTICLE 14. Prohibits advertisements in imitation of or resembling bank notes. Infringements will be subject to a penalty of 1,000 milreis (\$160).

ARTICLE 16. All captains and masters of merchant vessels, national or foreign, clearing from Brazilian ports for foreign countries are obliged to make a manifest of the merchandise loaded at the respective ports and must mention therein the name, class, and tonnage of the vessel, name of the master, number of packages and their denomination and quantity, class, and weight of each separate article of merchandise and its value when declared. This manifest must be posted to the "Repartição de Estística Commercial," Rio de Janeiro, and must be duly registered, which is to be done without charge. No vessel can be dispatched by the customs without exhibiting the certificate of the post-office proving remittance of the above-mentioned manifest. Should it be impossible to mail the manifest before the sailing of the vessel, in order not to delay the same, the inspector of customs, or the proper authority, shall accept a written declaration of the agent or consignor of the vessel, or other qualified party, to do so within forty-eight hours of the sailing of the vessel, subject to the penalty herein contained.

The post-office is required to give a special receipt certifying, after an examination of its contents, to the remittance of the manifest. For failure to deliver the manifest, the master or his agent shall be liable to a fine of 500 milreis (\$80) for the first offense and on each repetition 1,000 milreis (\$160). False declarations on the part of the master as to the species or number of packages received shall be liable to penalties of 10 to 50 per cent of the value of the merchandise and 20 to 100 milreis (\$3.20 to \$16) per package not declared. The above penalties shall be imposed by the inspector of the customs or other proper person and shall be collected in accordance with customs laws already in existence.

ARTICLE 21. Article XLV of law 641 of November 14, 1899, is hereby altered as follows:

On all labels or articles of foreign manufacture, printed all or in part in Portuguese, the country of origin must be stated.

ARTICLE 25. Reduces the fee of consular invoices from 5 milreis (\$2.73) to 3 milreis gold (\$1.64).

TARIFF OF BRITISH HONDURAS.

Consul Avery writes from Belize, February 5, 1901:

The following tariff went into effect in this colony February 1, 1901, reducing the duty on articles not otherwise specified from 12½ per cent to 10 per cent and slightly increasing some specific duties.

The schedule is very simple and easily understood and has the great merit of brevity.

The license for commercial travelers is fixed at \$10 per annum, instead of \$5 as heretofore.

SCHEDULE A.—TABLE OF CUSTOMS DUTIES.

1. Beef, wet salted.....	per barrel of 200 pounds...	\$1. 00
2. Beer, porter, cider, and perry, in bulk.....	per gallon...	. 25
3. Beer, porter, cider, and perry, bottled, per 6 reputed quarts or 12 reputed pints.....		. 25
4. Candles, except tallow.....	per pound...	. 02
5. Cigars, 25 per cent ad valorem and per 1,000.....		4. 00
6. Cigarettes.....	per 1,000...	1. 50
7. Cocoa, unmanufactured.....	per pound...	. 03
8. Coffee, raw.....	do.....	. 02
9. Gunpowder.....	do.....	. 05
10. Lumber, except palings, rough.....	per 1,000 feet...	1. 00
11. Lumber, except palings, dressed.....	do.....	1. 50
12. Oils, mineral, of 130° flash test and upward.....	per gallon...	. 03
13. Oils, mineral, below 130° flash test.....	do.....	. 06
14. Opium.....	per pound...	4. 00
15. Pork, mess.....	per barrel of 200 pounds...	1. 00
16. Revolvers.....	each...	3. 00
17. Rifles.....	do.....	1. 75
18. Spirits (not methylated), cordials, and liqueurs not exceeding the strength of proof by Sikes's hydrometer and in proportion for any greater strength than strength of proof.....	per gallon...	2. 50
19. Sugar, unrefined.....	per pound...	. 02
20. Sugar, refined.....	do.....	. 03
21. Tea.....	do.....	. 05
22. Tobacco, leaf.....	do.....	. 08
23. Tobacco, other than leaf.....	do.....	. 50
24. Wines, sparkling.....	per gallon...	1. 50
25. Wines, still.....	do.....	. 50

And after these rates for any greater or less quantity of such goods, respectively:

26. All other goods, wares, merchandise, and effects of every description not otherwise enumerated, including the cost of the packages in which they are packed, ad valorem..... 10 per cent.

SCHEDULE B.—GOODS FREE OF DUTY.

1. Agricultural implements, namely, cane bills, cane knives, cornshellers, harrows, hoes, hullers, and polishers for coffee or rice; ploughs and Demerara shovels, or parts of the said implements.
2. Animals, living.
3. Apparatus and appliances, or parts thereof, imported by a licensee for searching for, gathering, or preparing sponges (ordinance 33, of 1894).
4. Artificial limbs, or parts thereof.
5. Barrels and casks (empty), or parts thereof.
6. Books, printed (not being account), pamphlets, newspapers, and music.
7. Bricks, roofing slates, and tiles.
8. Bullion and coin.
9. Carts, for agricultural purposes, or parts thereof.
10. Chicle.

11. Church decorations and vestments imported specially for any church.
12. Coconuts.
13. Coal, coke, and patent fuel.
14. Drain pipes.
15. Fencing wire (other than netting) and staples.
16. Firewood.
17. Fish, salted, dry, or wet.
18. Fresh fish and oysters (not preserved in any way).
19. Fresh fruit and vegetables.
20. Furniture and household effects of bona fide agricultural immigrants.
21. Hides and skins (raw).
22. Ice.
23. Iron framework and girders for iron buildings.
24. Iron framework and girders, including bolts and rivets, for iron bridges.
25. Machinery, agricultural, marine, and manufacturing, or parts thereof, including boilers, belting, and steam pipes.
26. Manure and other fertilizers.
27. Maps and charts.
28. Meat, fresh (not preserved in any way).
29. Oil for steam launches.
30. Pans for boiling sugar or chicle.
31. Passengers' luggage (containing apparel and articles of personal use, and professional apparatus).
32. Patterns and samples of no salable value.
33. Plants, seeds, bulbs, and roots.
34. Plant or materials for railways, tramways, electric lighting, telegraphs or telephones.
35. Pumps, and other apparatus, or parts thereof, for raising water.
36. Rubber (unmanufactured).
37. Salt (other than table salt).
38. School appliances imported specially by the manager of any school.
39. Sponges (raw).
40. Stones, sand, gravel, and soil.
41. Tanks, iron, for water, and iron plates for water tanks, including bolts, etc.
42. Timber (except pine), and dyewoods, being indigenous to the colony.
43. Tombstones, memorial tablets, and railings for graves.
44. Tortoise shell (unmanufactured).
45. Trucks for mahogany works, and carts for logwood works or parts thereof, including draught and lashing chains.
46. Uniforms and appointments imported by civil officers.
47. Vats or parts thereof.
48. Vessels and boats.

BRITISH HONDURAS MAIL CONTRACT.

I inclose copy of a notice issued by the government of this colony, inviting tenders for carrying the mails between Belize and New Orleans after January, 1902.

The present service is performed by steamers of the United Fruit Company, and the contract price is \$14,500 per annum, but it is

unlikely that any such sum will be paid in future, because of the competing lines now running to this port.

When the present contract was let, the predecessors of the United Fruit Company were in control of the entire trade between this colony and the port of New Orleans, but since December, 1900, the Independent Line of Vaccarro Brothers has been giving a weekly service, and naturally it will be in the field for the mail contract.

The conditions are not burdensome and are open to any company that cares to engage in the fruit trade between Honduras, the United States, and Guatemala.

BELIZE, *February 28, 1901.*

W. L. AVERY,
Consul.

BRITISH HONDURAS MAIL CONTRACT.

COLONIAL SECRETARY'S OFFICE,
Belize, February 20, 1901.

The government of British Honduras invites tenders, to be received at this office until noon on Tuesday, the 4th of June next, for a weekly mail and passenger service by good and efficient steamships, to be approved by the government, of not less than 1,000 tons gross tonnage, as follows:

(1) The service to be between New Orleans and Belize, and between Belize, Puerto Cortez, Livingston, and Puerto Barrios, both ways, calling at the following places in the colony when proceeding to Puerto Cortez, etc., viz: Stann Creek and Monkey River, for the purpose of landing mails and passengers; and when returning calling at Punto Gorda, Monkey River, Sittee River, Stann Creek, and Mullins River for the purpose of embarking mails and passengers.

(2) The mails are to be conveyed between New Orleans and Belize in eighty-four hours.

(3) Each tender should state whether the contractors will agree to arrange for the due transmission between New York and New Orleans of the English parcel mail.

(4) Each tender should be accompanied by a schedule of rates of freight and passage money proposed to be charged.

(5) The ships engaged in the service will be exempt from compulsory pilotage and payment of light and wharf dues.

(6) The agreement to be for a period of five years, commencing in January, 1902.

(7) The contractor will be required to furnish security to the satisfaction of the Government for the due performance of the contract.

By command.

F. J. NEWTON,
Colonial Secretary.

GERMAN INTERESTS IN CENTRAL AMERICA.

Germany has recently appointed its first salaried consul to Central America, where German commercial interests have been rapidly increasing during the past few years. The newly appointed official is accredited to the State of Nicaragua, and his consulate will be established at Managua. Besides this salaried consul, there are at

present in Central America fifteen other German feed consuls, vice-consuls, and consular agents, whose duty it is to look after the interests of at least four thousand German residents and business firms in that country.

The Germans in Central America occupy a prominent position, both in a business and a social way. They are owners or managers of extensive commercial and agricultural enterprises, of important railroads and electrical plants. They are excellent physicians and teachers, and, in fact, are foremost in every profession, trade, and occupation.

It has been officially stated by the German Government that there are invested in Central America, in real estate, industrial enterprises, and banking business, \$59,500,000; and the large German business houses, which are quite numerous in Nicaragua, Guatemala, and Costa Rica, not only transact all the business between Germany and Central America, but also control most of the trade between the latter and England and California. German farms and plantations occupy more than 742,000 acres, on which are planted 20,000,000 coffee trees.

The trade between Germany and Central America annually amounts to from \$7,140,000 to \$11,900,000. The shipping on the entire coast of Central America is largely in the hands of the Hamburg-American and the Cosmos steamship lines. In Guatemala, the Germans control almost one-half of the entire coffee and sugar crops. It is in this State that Germany, too, takes foremost place in the foreign trade, and one would naturally expect that the first German consulate would open its headquarters in Guatemala; but Nicaragua was preferred, as the future canal across the Isthmus makes that section of Central America most important to all the great powers of the world.

Those who are familiar with the thoroughness of German methods generally, with the wonderful progress this nation has been making during the past dozen years in almost every field of human activity, and know how alert it is to extend its trade into every quarter of the globe, need not be told that the reorganization of the German consular service in Central America is a step of no mean importance.

HENRY W. DIEDERICH,

BREMEN, *January 19, 1901.*

Consul.

INDUSTRIAL CONDITIONS IN NICARAGUA.

Consul Donaldson sends from Managua, January 8, 1901, reports by Consular Agent Manning, of Matagalpa, as follows:

COFFEE.

There are some eighty-five or ninety persons of American citizenship in this district (Matagalpa). The coffee industry, in which most of them are engaged, promises better than last year, and the crop from this district will be about 20,000 bags. A good deal will go to New York and San Francisco, but the bulk will be sent to London or Hamburg, on account of the better prices usually realized there for fancy coffees, to which grade Matagalpa coffees belong. The American buyer insists on grading all coffees coming from Nicaragua as "Nicaragua" coffee (which is the usual "Sierra" grade from Managua), and therefore on paying low prices. The result of this is that the principal exportations from here are to Europe and not to the United States.

MINING.

Some quartz mining is being done in this district. Near San Ramon, 6 miles from Matagalpa, a large American company has obtained a series of old workings, on which the managers expect to erect a large machinery plant. Some other claims have been located near here, all being in low-grade ore and ore requiring the cyanide process for its treatment. The average ore here will yield about \$12 to \$14 gold per ton. There seems to be great quantities of the ore in the deposits discovered.

TOBACCO.

The tobacco crop of Matagalpa and Jinotega will be quite large this year, and the product is said to be of very good quality. The drawback to the export trade is that no care is taken to cure it properly. I do not doubt that tobacco from this district, if properly treated, would prove valuable for cigar manufacture. Some of the Americans in the colony are interested in tobacco, and a trial shipment will be sent to the United States this year.

INDUSTRIAL OPENINGS.

The population of Matagalpa has increased during the past year, as has also the number of houses built. The style of architecture is the same as in all Central American towns; but if it were possible to get properly made bricks, some of the foreigners here would construct brick buildings. There is a field here for a brickmaker with a

small brickmaking machine, and for a blacksmith and wagon maker, who might also be a cabinetmaker. Animals go unshod for want of men to shoe them, and many things go unrepaired because there is no one to do the repairing.

TRANSPORTATION.

The Compañía de Transportes de Matagalpa, Limited, has completed its survey of the route from Momotombo to Matagalpa, finding the distance to be but 79 miles, instead of 110 as heretofore calculated. The maximum grade will be about 10 per cent, and the engineers say there are no obstacles to be encountered, even for railway construction. The company has proposals from numerous manufacturers of traction motors and wagons, and unless a railway project should develop, work will be commenced on road building when the present crop of coffee is out of the way.

A line from here to navigable water on Lake Managua would cover but 45 miles at most, and on only 9 miles of this distance will grading be required. The rest is over perfectly level country, and, as water power is plentiful, there is some talk of abandoning the traction idea and laying a light electric road instead. This road, which would reach the lake near San Francisco del Carnicero, would pass through a good farming and grazing country and, it is believed by many, would be remunerative. The coffee planters of this district would give a company organized to build this road a good bonus in the way of survey grades, ties, money, and provisions, and the transportation company, I understand, would be willing to join with any outside capital for this end.

FRAUDULENT CANNED GOODS IN MEXICO.

I desire to call attention to a fraud that is being perpetrated by certain persons interested in the canning of oysters in the United States.

Various complaints have lately been made to me that certain brands of canned oysters sent here for sale contained almost no oysters. In investigating this matter, I purchased in open market two cans wrapped with the labels of a certain oyster canner of the United States. One of these tins was half filled with juice and held nine small oysters; the other contained seven.

These facts are regrettable, inasmuch as our canned-goods trade is increasing fast in this district. I have spent much time and trouble in promoting its growth. A few examples of bad faith such as this will undo the work faster than I can hope to remedy the evil.

In the purchase of canned goods, a certain amount of confidence has to be placed in the good faith of the canners, as the buyer has no opportunity before purchasing of judging for himself as to the excellence of the article.

The people of this district are not overconfident in outsiders at best, and until recently the trade in canned goods has increased slowly. It is now fast becoming a factor in the import trade, however, and should be protected as far as possible from such flagrant frauds as the above.

EDWARD H. THOMPSON,
Consul.

PROGRESO, *January 22, 1901.*

UNITED STATES CATTLE STRAYING INTO MEXICO.

The Department has received a report from Mr. McCreery, secretary of legation in Mexico, dated February 20, 1901, in regard to the complaints made by American citizens that the Mexican customs authorities at Sasabe, Sonora, refused to issue to owners of cattle straying into Mexico permits to enter Mexico. Mr. McCreery sends translation of a note from the Mexican Secretary of the Treasury, which quotes from a report by the Nogales custom-house, as follows:

I have the honor to inform the general direction that during the last two years and on the frontier of Sonora, which forms the fiscal jurisdiction of the custom-house under my charge, the passage of American stockmen, who periodically come into Mexican territory to collect their stock, has not been prohibited, as the Department of the Treasury has authorized such passage since September 15, 1896, as the direction may see by the telegraphic order of which a copy is attached, although the said Department reserved the power to grant permission for the same, from which it results that, in each case, for the issuance of a permit to an American stockman by this office it has been necessary to procure the permit from the Department of the Treasury by telegraph, and at present from the general direction, because, as it has been stated, the undersigned collector has no power to grant such permission.

Now, as the procurement of a permit from the Treasury Department or from the general direction is not and can not be a short operation, and as it should be borne in mind that, because of the distance alone, the message containing the petition is sent on one day and the reply can not come until the day following or until the third day, and that from the Colorado River to San Pedro Palominas, which is the present jurisdiction of this office, Nogales only has telegraphic communication with the capital, it can well be understood why the American stockmen have preferred, in order to save time, to buy horses and saddles on the Mexican side instead of applying for a custom-house permit.

The note from the Treasury Department adds:

In order to avoid in future complaints like the one in question, and to enable American stockmen to enter into Mexican territory with their horses and saddles when necessary, the proper orders have been given, by direction of the President

of the Republic, empowering the collectors of the customs of the frontier custom-houses from Tijuana, Lower California, to Ciudad Juarez, Chihuahua, to grant, when petitioned, temporary permits for ten days under the same conditions as those which this Department has granted in each case.

The Sasabe section, dependency of the Nogales custom-house, has also been empowered to issue such permits, for which it will have to ask, in each case, the authorization of the custom-house upon which it depends.

PORT IMPROVEMENTS AT ROSARIO.

Consul Ayers, of Rosario, under date of January 29, 1901, writes that he has forwarded to the Department the report of the inspector-general of navigation and ports for the Argentine Republic, on the means of improving the port of Rosario and the approaches thereto, so as to make it accessible at all seasons for large ocean vessels.* The consul adds:

The report is the result of much careful and scientific application and practical research and, as such, will commend itself to all interested in such work. The importance of the port of Rosario as the shipping point par excellence of this garden spot of the world, whose capacity for production has never yet been tested for a tithe of its possibilities, is, I believe, beginning to be appreciated.

The washings from the Andes continually add to the richness of this magnificent valley, and when it is seen what is produced by a manner of tillage that amounts to little more than scratching the soil, with carelessness in caring for the crops and wasteful handling on the estancia and en route, one can scarcely conceive what might be the results under a system of careful tillage, harvesting, and shipping. With the very insufficient facilities that now exist for shipment from this port, it is almost impossible to get the grain on board at harvest time. The demand for carrying space is much greater than the supply, which, of course, has the effect of increasing freight rates, and if production should increase with the introduction of better methods of farming, the lack of port facilities will be sorely felt.

There is reason for believing that the Government is fully alive to the importance of this work, and that the most energetic measures will be adopted to have it promptly and well done.

I hope that some United States company will make proposals for the work.

* Filed for reference in the Bureau of Foreign Commerce.

MONTEVIDEO PORT CONTRACT.

The final consideration of the bids made for the construction of the port works at Montevideo closed in the last week of December, with the acceptance of the bid of the French Syndicate.* On August 21, the bids were opened, but, owing to an informality on the part of the French Syndicate's bid, sixty days more were given to bidders to rearrange the tenders. On December 24, the bids were again opened; the amounts named include the duties on the imported material to be used in the work:

Schneider Syndicate (French).....	\$9, 827, 546
Allard Syndicate (French).....	9, 916, 336
Walker & Co. (English).....	13, 122, 125
Sir John Jackson, Limited (English).....	14, 514, 827
S. Pearson & Co. (English).....	15, 325, 551

The bid of the Schneider Syndicate was not formally considered, because of noncompliance with the specifications, and the second French Syndicate (Allard) received the contract.

The variation in the sums total of the respective bids, tendered on exactly the same specifications, shows a remarkable difference of opinion on the work. The successful syndicate is generally deemed to have won a very profitable contract, since there are no serious obstacles to the work.

The people of Montevideo now hope to have a commodious deep-sea port for the accommodation of the River Plata sea commerce. I may add here that the regret was general that no American syndicate appeared in the tenders, for it is appreciated that United States enterprise and push would have brought about the completion of the work in the most expeditious way. But it seemed that our country had no syndicate willing to bid.

ALBERT W. SWALM,

MONTEVIDEO, *January 7, 1901.*

Consul.

UNITED STATES CHEESE IN BRAZIL.

American dairies would, I think, do well to turn their attention to the possibility of exporting their cheese products to Brazil generally and to Sao Paulo especially. The consumption of cheese in this State is very large. While it is not possible to give exact statistics, its use is much more universal than in the United States. In

* See ADVANCE SHEETS No. 834 (October 9, 1900); CONSULAR REPORTS No. 243 (December, 1900).

every family it is a staple food article, after coffee. Allowing a liberal margin for profit and for transportation, United States cheese could easily compete with the other foreign cheeses—mostly brought from Italy, Switzerland, and France—now controlling the Brazilian market. As to whether they could compete with the imitation cheeses more largely used by the working classes and costing about 13 cents a pound, only the American producers can judge.

The wisest course would be for several dairy associations to send, in common, an expert to Brazil to carefully study not only prices, but the form and character of cheeses which the Brazilians desire.

A general agency should be established in Santos or Sao Paulo, in charge of an American able to speak and write the Portuguese language. The agent should then employ traveling men to visit the retail dealers in different parts of the Republic. Such a business campaign, intelligently carried out, could hardly fail to be exceedingly profitable to the American dairy trade.

JOHN J. GIRIMONDI,

SANTOS, *January 11, 1901.*

Consul.

AUSTRALASIAN GOLD PRODUCTION IN 1900.

The Australasian gold production has increased greatly since 1890, when the total was 1,587,947 ounces. For three years the rate of increase was only moderate, but from 1893 to 1894 the total rose from 1,876,563 ounces to 2,239,205 ounces. Again, for three years the increase was slow, but the developments in Western Australia caused the total to spring from 2,375,735 ounces for 1896 to 2,929,959 ounces for 1897. Two years of surprising increases followed, the total for 1898 being 3,547,079 ounces and that for 1899 4,461,105 ounces. The year 1900 has, however, witnessed retrogression, the total being 4,174,811 ounces, showing a decrease of 286,294 ounces. Nearly every State has produced less gold during the past year.

The following table indicates the movement in the production of each State for the last decade and for the past year:

State.	1890.	1899.	1900.
	Ounces.	Ounces.	Ounces.
New South Wales.....	127,460	509,418	345,000
New Zealand.....	193,193	389,558	371,993
Queensland.....	610,587	946,771	951,065
South Australia.....	24,831	34,990	29,397
Tasmania.....	20,510	83,492	89,000
Victoria.....	588,560	854,500	807,407
Western Australia.....	22,806	1,643,876	1,550,949
Total.....	1,587,947	4,461,105	4,174,811

The increase for the decade is 2,586,864 ounces, and the decrease for the year, as already stated, is 286,294 ounces. During the ten years, every State has increased its production to a greater or less extent, but Western Australia and Queensland stand first in this matter. In fact, the production of these two States in 1900, viz. 2,532,014 ounces, constituted over three-fifths of the Australasian total.

The extent to which Australasia has benefited by the great increase in gold production during the last ten years is best indicated by a comparison of values. The total value of the production at £3 15s. (\$18.24) per ounce for the years 1890, 1899, and 1900 is as follows:

Year.	Value.	
1890.....	£5,995,000	\$29,174,667
1899.....	16,729,000	81,411,678
1900.....	15,655,000	76,185,057

From 1890 to 1899, the increase in the total value was £10,734,000 (\$52,237,011), but the total value for 1900 was less than that for the previous year by £1,074,000 (\$5,226,621).

The exports of gold, notwithstanding a smaller production, have increased materially. Approximately, the returns show the following result for the years 1899 and 1900:

1899.....	\$51,171,247
1900.....	60,621,990

Shipments on a moderate scale have been made to South Africa and India, while there have been large shipments to San Francisco.

JOHN P. BRAY,
Consul-General.

MELBOURNE, *January 10, 1901.*

EFFECT OF BOXER TROUBLE ON UNITED STATES TRADE.

The uprising in North China broke out, as is well known, in the month of June, 1900; the press of the entire world has since that time been full of accounts of the events that transpired in this section. They have treated nearly every phase of this subject, and, while we know how our countrymen suffered in North China, I have not seen any statistics published showing the loss involved to merchants in the United States; and, believing that such statistics, taken from the Chinese customs returns, will prove of interest, I submit the following:

WHAT THE BOXERS COST THE AMERICAN EXPORTER.

To show this fairly, it will be necessary to adhere to the Chinese values, where given, instead of the gold values, which are not the same for the periods under review, and I am compelled to include the months of April and May (which were unusually prosperous), as the returns are published by quarters and do not show the trade by months.

CHEFOO.

Imports of merchandise specially termed American for the quarters ended June 30, 1899 and 1900.

Article.	1899.	1900.	Increase.
Drills.....pieces...	37,474	33,098	2,624
Jeans.....do.....	3,440	3,800	360
Sheetings.....do.....	140,305	178,230	37,925
Flour.....haikwan taels...	86,650	103,994	107,344
Oil, kerosene.....gallons...	994,049	2,214,939	1,220,890

The above shows enormous increases in the classes termed American, and I am aware that all other lines of imports from the United States showed the same prosperity. These figures are all the more remarkable when it is borne in mind that, while covering a full quarter, they actually represent the importations for two months and ten days—*i. e.*, to June 10. After the 15th of June, the imports ceased, all commercial transactions being absolutely nil. For a clearer understanding, the returns for the following full quarter are given:

Imports of merchandise specified as American for the quarters ended September 30, 1899 and 1900.

Article.	1899.	1900.	Decrease.
Drills.....pieces...	46,810	3,714	43,096
Jeans.....do.....	2,760	200	2,560
Sheetings.....do.....	134,530	22,515	112,015
Flour.....haikwan taels...	158,275	19,225	139,050
Oil, kerosene.....gallons...	857,100	5,000	852,100

Of course, all other lines fell off likewise; and yet Chefoo and the interior saw no armed hordes, no military movements, and, as compared with the immediate northern ports, was peaceful. As a matter of fact, Chefoo was the base for communication with the allies and the world, while Shantung was comparatively quiet, owing entirely to the friendly stand taken by the governor—Yuan Shi Kai; yet there were more riots and tumults in my district than ever known before, and the various American-mission losses will probably total \$150,000 gold. But the idea of this summary is not

to show what America lost in China, but what Americans lost in America through the Boxers in China.

TIENTSIN.

Imports of merchandise specified as American for the quarters ended June 30, 1899 and 1900.

Article.	1899.	1900.	Increase.	Decrease.
Drills.....pieces...	239,869	73,320		166,549
Jeans.....do.....	22,445	10,470		11,975
Sheetings.....do.....	957,115	475,065		482,050
Oil, kerosene.....gallons...	585,000	713,600	128,600	

It will be seen by the above that the effects of the Boxer movement were felt much earlier and more seriously in Tientsin than in Chefoo. During the month of June, Tientsin was practically closed to the world; yet it is odd to notice that oil showed a gain, especially when it is known that the Boxers boycotted that commodity first of all things foreign. I know of ships loaded with Oregon lumber that reached Taku and were unable to land their cargoes, thus entailing an enormous loss upon the American lumber trade. One American firm paid through this office over \$5,000 gold on demurrages alone on this account, besides losing the sale of the lumber destined for Tientsin.

Imports of merchandise specified as American for the quarters ended September 30, 1899 and 1900.

Article.	1899.	1900.	Decrease.
Drills.....pieces...	176,340	16,875	159,465
Jeans.....do.....	20,170	3,140	17,030
Sheetings.....do.....	398,285	58,655	339,630
Oil, kerosene.....gallons...	588,000	20,000	568,000

This is almost annihilation, and at what is usually the busiest time of the year for our trade. Tientsin is the port for Pekin, all Chihli, etc., and it is not necessary in this summary to remind our people of the strife enacted therein during this period.

NIUCHWANG.

Imports of merchandise specially termed American for the quarters ended June 30, 1899 and 1900.

Article.	1899.	1900.	Decrease.
Drills.....pieces...	234,235	112,980	121,255
Sheetings.....do.....	554,385	399,340	155,045
Oil, kerosene.....gallons...	760,000	616,000	144,000

It is to be noted that Chefoo has five classes specified as American, of which all show gains. Tientsin has four classes, of which only one shows a gain, while Niuchwang has only three and all show a heavy loss for the June quarter.

Imports specified as American for the quarters ended September 30, 1899 and 1900.

Article.	1899.	1900.	Decrease.
Drills .....pieces...	148,022		148,022
Sheetings .....do....	36,665	620	36,045
Oil, kerosene.....gallons...	658,000	25,000	633,000

This is annihilation pure and simple, and yet Niuchwang saw less fighting than Tientsin; and the only foreign power that interfered there was Russia. That Government seized the port as early as August 4, and on the 12th had control of the custom-house.

KYAO-CHAU.

The custom-house at Tsintau, German colony in Shantung—or, as the customs term it, Kyao-chau—was opened for business July 1, 1899; therefore, no comparison can be made for the June quarter of 1899, and the imports for 1900 are too insignificant to mention.

RÉSUMÉ.—NORTH CHINA.

Imports specified as American into the three northern ports of Chefoo, Tientsin, and Niuchwang for the quarters ended June 30, 1899 and 1900.

Article.	1899.	1900.	Increase.	Decrease.
Drills.....pieces...	504,578	219,393		285,180
Jeans.....do....	25,885	14,270		11,615
Sheetings .....do....	1,651,805	1,052,635		599,170
Flour *.....haikwan taels...	80,650	193,994	107,344	
Oil, kerosene.....gallons...	2,339,640	3,544,530	1,205,400	

* Chefoo only; not specified elsewhere.

† Due to gains at Chefoo.

Thus, in this quarter, in spite of the large gains credited to Chefoo, the northern imports declined more than half from those of the same period of 1899.

Merchandise specified as American imported into the ports of Chefoo, Tientsin, and Niuchwang during the quarters ended September 30, 1899 and 1900.

Article.	1899.	1900.	Decrease.
Drills .....pieces...	371,172	20,589	350,583
Jeans .....do....	22,930	3,340	19,590
Sheetings .....do....	839,480	81,799	757,690
Flour .....haikwan taels...	158,275	19,225	139,050
Oil, kerosene.....gallons...	2,053,100	50,000	2,003,100

The above gives a good idea of what a mob in China can do in interfering with trade. The greatest loss is, of course, in cotton piece goods, and this cessation of imports must have been most keenly felt in the Southern States. Probably, no country in the world suffered as much as did the United States, for the scene of strife covered practically our field of trade.

These tables do not by any means show our losses; they only serve to show the losses in a few specified lines.

Imports of merchandise into the ports of Chefoo, Tientsin, and Niuchwang during the quarters ended September 30, 1899 and 1900.

Article.	1899.	1900.	Increase.	Decrease.
Opium.....piculs*	1,000	157		843
Shirtings.....pieces.....	630,304	72,697		557,607
T cloths.....do.....	133,178	3,318		129,860
Indian.....do.....	500			500
Japanese.....do.....	21,368			21,368
Drills:				
English.....do.....	5,415	1,080		4,335
Dutch.....do.....	4,320	200		4,120
American.....do.....	371,172	20,584		350,588
Jeans:				
English.....do.....	5,590	1,210		4,380
Dutch.....do.....	5,310	1,000		4,310
American.....do.....	22,930	3,340		19,590
Sheetings:				
English.....do.....	12,466	3,517		11,949
Indian.....do.....	4,950			4,950
American.....do.....	839,480	81,790		757,690
Chintzes.....do.....	62,749	21,340		41,409
Twills.....do.....	1,695	1,164		531
Turkey red.....do.....	30,608	1,804		28,804
Cotton lastings.....do.....	102,749	13,534		89,215
Velvets and velveteens.....do.....	1,296			1,296
Muslin and lawn.....do.....	2,367	238		2,129
Handkerchiefs.....dozen.....	26,454	12,279		14,175
Towels.....do.....	148,204	13,652		134,552
Cottonades.....pieces.....	2,277	490		1,787
Mahomedans.....do.....	80			80
Cotton:				
Spanish stripes.....do.....	4,738	408		4,330
Flannel.....do.....	5,450	878		4,572
Yarn—				
English.....do.....	2,198	360		1,838
Indian.....do.....	37,142	5,670		31,472
Japanese.....do.....	122,294	5,714		116,580
Shanghai.....do.....	10,323	2,932		7,391
Native cotton goods:				
Drills.....do.....	150	450	300	
Sheetings.....do.....	21,800			21,800
Woolen goods:				
Camlets, English.....do.....	980	130		850
Lastings.....do.....	5,860	240		5,620
Long cloths.....do.....	2,820	200		2,620
Spanish stripes.....do.....	1,132	108		1,024
Broadcloth.....do.....	245			245
Russian cloth.....do.....	180			180
Italian cloth.....do.....	1,681			1,681

* 1 picul=133½ pounds.

Imports of merchandise into the ports of Chefoo, Tientsin, and Niuchwang, etc.—Cont'd.

Article.	1899.	1900.	Increase.	Decrease.
Metals:				
Iron—				
Nail rods.....piculs*	17,334	2,205		15,129
Bar.....do.....	8,108	44		7,667
Wire.....do.....	466			466
Old.....do.....	117,680	9,236		108,450
Tin.....do.....	249	72		177
Lead in pigs.....do.....	7,327	463		6,864
Copper.....do.....	979	1		978
Steel.....do.....	5,801	1,900		3,902
Inkstone.....do.....	34			34
White metal.....do.....	83			83
Sundries:				
Buttons, brass.....gross..	33,145	4,001		29,145
Coal.....tons.....	5,933	13,847	+7,714	
Cotton, raw.....pieces.....	15,718	74		15,644
Dyes, aniline.....haikwan taels..	166,663	6,799		159,864
Flour, American.....do.....	158,275	19,225		139,050
Glass, window.....boxes.....	7,021	1,440		6,581
Matches.....gross.....	1,063,909	245,373		818,606
Needles.....mille.....	436,325	18,000		418,325
Oil, kerosene:				
American.....gallons.....	2,053,100	50,000		2,053,100
Russian.....do.....	1,581,000	15,000		1,566,000

* 1 picul=133½ pounds.

† All at Chefoo for war ships, transports, etc.

From the above list, I have excluded native sundries; for instance, Kaiping coal all comes from Tientsin, and rice from Canton and Chinkiang; and, although I have set forth the figures in strict accordance with the customs returns, nevertheless they do not give an accurate idea of the trade.

SHIPPING.

The number of ships that entered the northern ports for the quarter ended September 30, 1899, was:

Port.	1899.	1900.	Decrease.
Niuchwang.....	196	75	121
Tientsin.....	(*)	(*)	(*)
Chefoo.....	522	282	440

* No record.

REVENUE.

Revenue for September quarter (total collection).

Port.	1899.	1900.	Decrease.
	<i>HK. taels.</i>	<i>HK. taels.</i>	<i>HK. taels.</i>
Niuchwang.....	278,912	90,759	188,653
Tientsin.....	345,209	60,081	285,128
Chefoo.....	185,187	88,166	97,021
Total.....	809,308	238,506	570,802

The total collection of duties for all China during the quarter ended September 30, 1900, was 5,163,795 haikwan taels, while for the same quarter of 1899 it was 7,623,386 haikwan taels, a loss of 2,459,591 haikwan taels. This loss is for only one quarter.

The foregoing statistics are compiled from the returns for the quarters ended June 30 and September 30, 1900, issued by the foreign customs of China.

UNITED STATES STATISTICS.

An examination of the returns issued by the United States Treasury Department reveals the following:

Value of exports from United States to Chinese Empire for first ten months of 1899 and 1900.

1899.....	\$12,628,955
1900.....	10,442,811
Loss.....	2,186,144

This does not show what we really lost, for there are immense quantities of merchandise in the ports to be worked off before importations can recommence. The year 1900 began with the greatest increase in our trade ever known, and ended with the most serious losses.

The losses to the cotton trade alone I estimate at over \$3,000,000.

For the five months of 1900, before the outbreak, our trade had increased (net) \$684,216 over that for the five months of 1899.

For the five months from June to October, there was a net loss of \$2,865,043.

The Treasury statistics, it should be remembered, do not embrace all of our trade with China, as large quantities of merchandise are sent into China from the United States via Japan, Hongkong, London, etc.

As nearly all the cotton piece goods from the United States are for the northern trade, I extract the following from the Treasury statistics to show how this trade was affected:

Value by months of the exports to China of cotton piece goods.

Month.	1899.	1900.	Increase.	Decrease.
January	\$855,528	\$320,217		\$535,311
February	1,047,275	702,406		344,869
March	982,722	1,172,152	\$189,430	
April	564,487	398,262		166,229
May	626,094	418,123		208,841
June	1,568,725	554,188		1,014,537
July	728,721	859,500	130,779	
August	598,380	103,520		494,860
September	669,013			669,013
October	772,834	25,375		747,459
Total	8,414,649	5,053,743		3,360,906

The following statement may also be found of interest:

Deliveries of cotton and woolen piece goods from Shanghai to Ningpo and Vladivostok in 1900 and 1899.

Goods.	Ningpo.		Vladivostok.	
	1900.	1899.	1900.	1899.
Gray shirtings.....pieces..	413,330	477,281	114,755	20,725
T cloths:				
32 inches.....do.....	38,670	52,181		
36 inches.....do.....	24,661	29,180		
32 and 36 inches.....do.....			15,925	26,731
Indian, 32 and 36 inches.....do.....	2,729	1,430	100	80
White shirtings.....do.....	114,829	110,662	92,335	68,553
Drills:				
English and Dutch.....do.....	4,080	6,945	79,656	74,564
American.....do.....	26,500	28,535	19,245	16,840
Spectings:				
English.....do.....	8,368	9,630	57,787	65,117
Indian.....do.....	60	180		1,000
American.....do.....	49,785	50,960	7,120	22,355
Printed cottons.....do.....	13,663	20,830	7,049	4,783
Cotton yarn:				
Indian.....piculs..	2,684	2,501	15	93
English.....do.....	309	276	9	
Japanese.....do.....	3,427	2,448		
Shanghai.....do.....	2,293	1,539		
Spanish stripes, woolen.....pieces..	1,880	2,166		6
Medium and broad cloths.....do.....	670	1,008	170	199
Camlets.....do.....	3,000	2,800	30	140
Long ells.....do.....	780	910	495	750
Lastings.....do.....	1,280	1,440	780	513
Italian cloth.....do.....	3,289	5,011	822	3,153
Cotton lastings and Italians.....do.....	47,342	40,630	19,819	28,859

JOHN FOWLER,

CHEFOO, February 9, 1901.

Consul.

HOG BRISTLES IN CHINA.

In answer to an inquiry by a Baltimore firm,* Consul Wilcox, of Hankau, under date of January 9, 1901, sends the following report upon the present condition of the hog-bristle industry in China:

I can report upon this subject only so far as it relates to the city of Hankau. Here, the business of preparing hog bristles is being carried on as usual, except that the volume of trade in this, as in all other lines of industry, has been more or less paralyzed by the political situation. There are no factories in this district, but a large majority of the foreign "hongs" here are engaged in exporting bristles. The season opens in the fall and continues until May.

When a "hong" has a sufficient amount of material on hand, it employs women and girls to cleanse and sort the bristles. The raw material is weighed out to each person, and the cleansing and sorting of this amount represents a day's work. The employees are paid from 100 to 120 cash (6 to 7 cents gold) per day. During the working hours, a careful watch is kept over the hands to prevent their pilfering the large, hard bristles and substituting therefor small or soft ones brought for that purpose. At the end of a day's work, the refuse and bristles are again weighed separately in order to detect any material loss.

The bristles are assorted into seventeen grades, running from $2\frac{1}{2}$ to $6\frac{1}{2}$ inches in length. They are exported in 1-picul ($133\frac{1}{3}$ pounds) lots, each case containing the entire assortment of seventeen grades. The percentage of each grade varies somewhat in different lots of raw material, but the average is about as follows:

Length of bristle.	Average of the amount.	Length of bristle.	Average of the amount.
	<i>Per cent.</i>		<i>Per cent.</i>
$2\frac{1}{2}$ inches.....	10	$4\frac{1}{4}$ inches.....	5
$2\frac{3}{4}$ inches.....	$9\frac{1}{2}$	5 inches.....	$4\frac{1}{2}$
3 inches.....	9	$5\frac{1}{4}$ inches.....	4
$3\frac{1}{4}$ inches.....	8	$5\frac{1}{2}$ inches.....	4
$3\frac{1}{2}$ inches.....	$7\frac{1}{2}$	$5\frac{3}{4}$ inches.....	$3\frac{1}{2}$
$3\frac{3}{4}$ inches.....	7	6 inches.....	$3\frac{1}{2}$
4 inches.....	$6\frac{1}{2}$	$6\frac{1}{4}$ inches.....	$3\frac{1}{2}$
$4\frac{1}{4}$ inches.....	6	$6\frac{1}{2}$ inches.....	3
$4\frac{1}{2}$ inches.....	$5\frac{1}{2}$		

Several bristle machines have been imported by different firms from England, France, and Germany; but as they did not prove

* To which ADVANCE SHEETS have been sent.

satisfactory, they have been abandoned and hand labor, which is cheaper and gives better results, has been again resorted to.

The raw material costs from 35 to 45 taels (\$23.10 to \$29.70) per picul (133⅓ pounds), according to amount of hair and dirt and quality of the bristles. The price of the prepared bristles runs from 25 to 30 taels (\$16.50 to \$19.80) for the 2½-inch to 225 to 250 taels (\$148.50 to \$165) for the 6½-inch bristles per picul (133⅓ pounds).

Dealers here say that difficulty is experienced in the United States in disposing of bristles less than 3½ inches in length, the shipment of the seventeen assortments in every case preventing ready sales.

During the year 1899, the customs reports give the following figures on the exportation of hog bristles from this consular district:

From—	Quantity.		Value.
	<i>Pounds.</i>	<i>Taels.</i>	
Hankau	892,400	192,548	\$127,081.68
Ichang	817,200	118,176	77,996.16
Total	1,709,600	310,724	205,077.84

CHINESE AGRICULTURE AND AMERICAN MACHINERY.

Supplementary to my report on the "Possibilities of the Chinese market," dated February 19, 1900,* I wish to say that there is no market in southern China for American harvesting machinery, such as reapers, mowers, horserakes, etc. Of course, for the same reason there is no market here for the better class of planting machinery, such as steam and gang plows, seed drills, harrows, etc. At certain times of the year, this consulate (Hongkong) is in receipt of a large number of letters and circulars regarding the merits of American harvesters. At other seasons, it receives an equal number of letters and circulars pointing out the excellence of our plows, etc. Since the close of the Paris exposition, almost every firm of this nature in the United States which was represented at that exposition has sent me letters and marked newspapers proclaiming the awards their particular companies received at Paris.

While these statements are all very interesting to me as an American, they are of absolutely no value to the sender, as I can make no use of them to their advantage.

The agricultural land of southern China is divided into small holdings, many of which are not over an acre in size, and very few

* See ADVANCE SHEETS No. 725 (May 9, 1900); CONSULAR REPORTS No. 238 (July, 1900).

running over 10 acres. Every available inch of this land is under cultivation, and the planting and reaping is all done by hand; where plows are used they are of home manufacture and are as primitive as those of biblical times. The majority of the peasantry live at the rate of from 2 to 5 cents a day, and even if they could afford to purchase modern American farming machinery there would be no room to use it. The nearest thing to such machinery that I have seen in southern China is a fanning mill, which is easily constructed by the ingenious Chinaman. The grain is either trod out of the straw by water buffaloes or whipped over an open tub. Even if an entire village should combine to buy an American thrashing machine, it would be used but once, as it would be considered too wasteful both in the way it mangles the straw and the grain and in its expensive upkeep. In southern China there are no horses except the diminutive China pony, and, as the agricultural country is mostly flat, there is no way to utilize water power. As for steam, it is an impossibility, fuel being one of the most expensive Chinese luxuries. As long as labor has almost no value and flesh and blood is the cheapest thing on the market, I can not recommend American manufacturers to waste good printed matter and postage stamps on so impossible a field.

I have already called attention to the uselessness of mailing to this consulate trade papers devoted to the carriage and harness industry, and mentioned the fact that we had but three carriages and a hearse here, all of which are in a fair state of preservation. Yet, in spite of this, the energy of the carriage manufacturer has not abated, and I have had to write personal letters to a number of journals asking them to discontinue sending same to this office. If carriage manufacturers wish to find a market in this region, I would advise them to turn their attention to Manila, which is alive with carriages of every description, and at which place a demand will increase from year to year as the roads improve. Shanghai and Singapore are also small but possible markets.

ROUNSEVELLE WILDMAN,

HONGKONG, *December 27, 1900.*

Consul-General.

EXPORT TRADE FROM TIENTSIN.

The export returns herewith submitted give striking evidences of how Tientsin and North China have suffered in consequence of the uprising. The enormous discrepancies between the figures for the present and for last year tell a tale of loss to the producer, as well as to the merchant, that is startling. In the item of dogskins,

it will be noticed that 1,284 were exported this year, against 18,837 last year, while in bristles, sheepskin clothing, and many other articles, the falling off is equally noticeable. Nor is the outlook for the year 1901 favorable for large shipments. The country north of Tientsin, where the principal articles of export are produced, is now overrun with ex-Boxers and ex-soldiers who have turned bandits, and it will be exceedingly difficult for merchants to get goods out of or into the interior.

Principal articles of export for the years 1899 and 1900.

Article.	1899.		1900.	
	<i>Piculs.</i>	<i>Pounds.</i>	<i>Piculs.</i>	<i>Pounds.</i>
Bristles.....	13,899	1,853,200	8,077	1,076,953
Feathers, duck.....	1,516	202,133	1,006	134,133
Hair, horse.....	8,461	1,128,133	2,504	333,866
Jute.....	19,678	2,623,733	2,260	301,333
Straw braid.....	25,160	3,354,666	20,122	2,682,933
Wool:				
Camel.....	40,923	5,456,400	16,988	2,265,666
Goat.....	4,832	644,266	2,510	334,666
Sheep.....	217,871	29,049,466	108,955	14,528,666
	<i>Pieces.</i>		<i>Pieces.</i>	
Rugs, dogskin.....	18,837		1,284	
Goatskins.....	741,311		173,111	
Sheepskins.....	120,872		5,121	
Dogskin clothing.....	16,968		6,700	
Kid-skin clothing.....	79,799		22,831	
Lambskin clothing.....	71,614		32,568	
Sheepskin clothing.....	114,613		9,481	
Untanned goatskins.....	2,627,870		932,067	
Untanned lambskins.....	406,247		242,540	

Exports to the United States for the years 1898, 1899, and 1900.

Article.	1898.		1899.		1900.	
	<i>Tael.*</i>		<i>Tael.*</i>		<i>Tael.*</i>	
Bristles.....	129,030.28	\$85,289	184,503.23	\$126,569	180,081.49	\$123,537
Carpets.....	2,736.77	1,809	4,918.57	3,371	1,255.65	861
Curios, embroideries, and porcelains.....	3,555.21	2,550	39,571.95	27,146	869.65	593
Hides, cow.....	5,614.13	3,711	1,472.06	1,010	6,996.48	4,800
Intestines, sheep.....	18,367.95	12,141	9,755.41	6,692	5,149.24	3,526
Miscellaneous.....	6,712.78	4,437	2,046.92	1,404	2,496.66	1,713
Personal effects.....			1,611.36	1,105	881.80	605
Skins:						
Sheep.....	7,226.51	4,777	42,079.69	28,867	4,383.21	3,007
Goat—						
Untanned.....	35,757.21	23,636	253,497.10	173,870	42,036.63	28,837
Dressed.....	46,882.85	30,990	271,368.16	186,159	7,880.01	5,406
Tiger and leopard.....			2,857.66	1,960		
Straw braid.....	283,782.52	187,580	225,926.20	154,985	189,846.86	130,235
Wool, sheep.....	1,143,595.26	755,916	1,215,623.33	1,266,098	856,141.98	587,519

* The Tientsin tael, in 1898, was valued at 66.1 cents; in 1899, 68.62 cents; in 1900, 68.67 cents.

IMPORTS.

I am unable to give any reliable import statistics. Outside of supplies imported for the armies (not accounted for in the customs records), the same ratio of loss appears as given in the export returns. The cotton and woolen industries have suffered heavily.

The supplies furnished the United States troops have attracted the notice and envy of all other nationalities, including the merchant as well as the soldier—an advertisement that could not well have been procured in any other manner.

JAMES W. RAGSDALE,
Consul.

TIENTSIN, *January 3, 1901.*

ELECTRICITY IN INDIA.

Consul-General Patterson, of Calcutta, under date of January 17, 1901, sends the following:

In continuation of my report on the use of electricity and electrical machinery in Calcutta, made October 16, 1900,* I inclose a clipping from the Calcutta Statesman of January 13, 1901, showing the rapid development of the use of electricity in Calcutta and in other places in India and the market for electrical machinery and supplies, which should interest our manufacturers of such articles.

The past year has been marked by a great development of electrical enterprise in India. The most novel, if not the largest, scheme is that at Mysore, where the waters of the Cauvery Falls are being harnessed for the benefit of the Mysore gold mines. Large turbines, driving dynamos requiring 700 horsepower to work them, will be required for the Cauvery power scheme. Here, in Calcutta, the Tramways Company will shortly adopt electric traction and will require dynamos of the same size as those ordered for Mysore; but there is no water power available in Calcutta, no one as yet having essayed to chain the mighty Hooghly. But the largest dynamo yet ordered for India are those for the Calcutta Electric Supply Corporation, whose engineer, Mr. Scott Moncrieff, has just returned from England, having arranged for the delivery of two sets of engines and dynamos, each of 1,100 horsepower.

The electric fan, driven by current from the corporation's mains, has already acquired great popularity in Calcutta. It makes some two hundred revolutions per minute, giving a slow, steady breeze of great volume. These fans are in most cases placed 15 feet apart where more than one is required, but opinions vary as to their effective scope. In the cathedral, which is pronounced the coolest place in Calcutta in the hot weather, they are placed 10 feet apart. The central telegraph office and the high court have adopted the 15-foot standard, and private installations vary in their number of fans according to the ideas and pecuniary resources of the householders. The Electric Supply Corporation have introduced a system of hiring out fans at a charge of 4 rupees (\$1.25) per month for each fan, which is

* See ADVANCE SHEETS No. 897 (November 27, 1900); CONSULAR REPORTS No. 245 (February, 1901).

likely to prove popular. The electric light is also particularly useful in India, and its widespread use in Calcutta shows how well it is appreciated.

In addition to the above instances of the use of electricity, we understand the workshops of the East Indian Railway and of the Bengal-Nagpore Railway will shortly be driven by electricity. The old and time-honored arrangement of shafting, belts, and pulleys is now, in fact, giving place to electric motors. But perhaps the greatest novelty of all is the new electric lift in Government House. When using the lift one first presses a button, which brings the lift from whatever floor it has been left to that on which it is required. One enters the lift and finds a row of push buttons, like electric bell pushes, each one marked for a floor at which the lift may be wanted to stop. A button is pressed, and the electric current does the rest. In order to insure safety in working, the lift will not move until all the lift doors are shut. In a lift of this sort no attendant is required. While electricity from the Supply Company's mains thus elevates the viceroy, it also lifts tea at the tea warehouse, works tea packers, and drives many printing presses throughout the city. It is also used for working sewing machines and will shortly blow the cathedral organ.

QUININE AUCTION IN BATAVIA.

Consul Rairden reports from Batavia, January 7, 1901:

The eighth public auction sale of quinine was held in this city on December 28, 1900, and the following were the prices realized:

Editio II, consisting of about 4,000 kilograms (8,818 pounds) of sulphate of quinine in lots of 22.68 to 25 kilograms (50 pounds to 55 pounds): Seven lots only were sold at 19.10 and 19.50 florins (\$7.68 and \$7.84) per kilogram. The remaining lots were bid to 19.05 florins (\$7.66) and withdrawn from the market. The average price for the lots sold was 19.12 florins (\$7.69) per kilogram (2.2046 pounds).

Editio III, consisting of 120 kilograms (264.5 pounds) of sulphate of quinine in five lots of 24 kilograms (52.9 pounds) each: Two lots were sold at 24.90 florins (\$10.01) per kilogram, one lot was not sold as bids were below the limit, and two lots were not put up for sale.

Editio II, consisting of 240 kilograms (529 pounds) of muriatic quinine in lots of 11.34 to 12 kilograms (25 to 26.4 pounds): No bids were had for this article.

The next auction sale of quinine is advertised for February 27, 1901.

CULTIVATION OF ONIONS IN EGYPT.

The cultivation of onions in Egypt is assuming from year to year larger proportions, and there are now but few markets in southern Europe which the Egyptian product does not control during the earlier part of the season.

The result of last year's harvest proved a great surprise to dealers, as the prospective amount of production had been greatly underestimated. In March, it was believed that the crop would not exceed 900,000 sacks, a quantity much smaller than that of the previous year. At first this opinion seemed to be correct, as supplies arrived at Alexandria ten days later than usual and in much smaller quantities. The situation changed, however, by degrees, and after the 1st of June there were more onions on the market than ever before.

Strange as it may seem, the apprehension of a small harvest had no appreciable influence on the price of the article, which did not fluctuate much during the season; the demand kept firm till summer.

The export of onions from Egypt to Mediterranean countries is growing every year. The amount sent to Trieste increased fully one-third in 1900. A large portion was sent on consignment. The regular Lloyd steamers from Alexandria were by no means sufficient to carry the produce, and special boats had to be chartered. At the beginning of the season, 4.95 to 5.40 florins (\$2.01 to \$2.19) per 100 kilograms (220.46 pounds) were paid; later, prices fell and remained at from 4.05 to 4.50 florins (\$1.64 to \$1.83) until the end of May. During the remainder of the season, good onions still sold at 3.15 to 3.60 florins (\$1.28 to \$1.46) per 100 kilograms.

Large quantities of Egyptian onions are also exported to Great Britain, but it is said that these are usually of inferior quality. The price paid for this product in London and Liverpool ranged from 4s. to 5s. (96 cents to \$1.21) per 100 pounds during the last season.

FREDK. W. HOSSFELD,

TRIESTE, *February 8, 1901.*

Consul.

BUSINESS CONDITIONS IN BEIRUT.

Owing to overspeculation and to a collapse of the silk trade, Beirut is at present passing through a crisis which will affect its commerce for perhaps a year to come. The losses from disastrous cotton deals and the sudden drop from 51 francs to 38 francs per kilogram (\$9.84 to \$7.33 per 2.2046 pounds) in the price of raw silk, due to the failure of the Paris exposition to dispose of accumulated quantities of silk manufactures, are said to amount to something

like £250,000 (\$1,216,625). A number of significant bank and business failures have also occurred, affecting both home and foreign interests. Money is being withdrawn from circulation, and, until confidence has once more been restored, local conditions will be strained.

The commercial interests of the United States have not suffered, the sagacity and prudence of our merchants in financial dealings with levantine mercantile houses being proof against such flurries. The refusal of our exporters to adopt the wide-open policy of certain European countries, in offering credits and consignments and inferior articles, is highly commendable. American manufactures are gaining ground in Syria, in spite of stricter terms of payment and sometimes higher prices, because of their superior qualities.

G. BIE RAYNDAL,

BEIRUT, *January 25, 1901.*

Consul.

NEW RUSSIAN TARIFF.

Consul Kehl sends from Stettin, February 27, 1901, copy of the new Russian tariff on certain imports from the United States, which went into effect March 1, 1901, as follows:

Paragraph.	Articles.	Present tariff on United States imports.		Old tariff on United States imports.	
		Rubles.		Rubles.	
150	Cast-iron wares:				
	1. Castings in the rough.....per pood...	*1.125	\$0.579	0.75	\$0.386
	Conventional duty.....			.60	.309
	2. Vessels of cast iron, enameled.....	*1.50	.772		
	3. Cast-iron wares, filed, polished, turned, painted, bronzed, tinned, varnished, enameled (except vessels), zincked, or coated with other common metals, even combined with wood, copper, or its alloys.....	*2.55	1.313		
	Conventional duty.....			1.40	.721
151	Manufactures of iron and steel, forged, stamped, or cast, not filed, or filed on the sides and edges only, but not otherwise wrought, forged nails.....	†2.55	1.313		
	Conventional duty.....			1.40	.721
152	Iron and steel boiler work, such as boilers, reservoirs, tanks, cases, bridges, pipes, as well as all other articles of sheet iron or steel not especially mentioned.....	†2.55	1.313		
	Conventional duty.....			1.40	.721
153	Manufactures of iron or steel not especially mentioned, shaped, turned, polished, bronzed, or otherwise worked, combined or not with wood, copper or its alloys, weighing—				
	1. More than 5 funts each.....	*2.55	1.313		
	Conventional duty.....			1.40	.721
	2. Less than 5 funts each.....	*4.05	2.085		
	Conventional duty.....			2.20	1.133
	3. Padlocks and other locks except those of copper, also wood screws.....	†6.00	3.000		

*And 20 per cent.

†And 30 per cent.

Paragraph.	Articles.	Present tariff on United States imports.		Old tariff on United States imports.	
		<i>Rubles.</i>		<i>Rubles.</i>	
161	Tools for use of artists, trades, factories, and workshops.....	*2.10	\$1.081	1.40	\$0.721
	Conventional duty.....			1.10	.586
167	Machinery, apparatus, and models thereof, complete or in parts, adjusted or not (section 2 only of this paragraph is changed):				
	2. Gas and water meters, motors worked by gas, hot air, or petroleum, dynamos, sewing machines, knitting machines, portable engines (with the exception of those mentioned in section 3), machines of all kinds not especially mentioned, of cast iron, iron or steel, with or without parts of other materials.....	*2.55	1.313		
	Conventional duty.....			1.40	.721

NOTE.—New Russian tariff on certain imports from the United States calculated on a basis of pood equal to 40 funts equal to 36 pounds avoirdupois; the funt, therefore, equals 0.9 pound. Customs monetary unit, gold ruble equal to 51.5 cents. In effect March 1, 1901.

*And 30 per cent.

NOTES.

Banks in Japan.—Consul Lyon transmits from Hiogo, February 7, 1901, an item taken from the *Kobé Daily News*, showing the number of banks existing in the Empire December 31, 1900, and their paid-up capital. The article reads:

The latest report prepared by the authorities of the financial department shows that there were altogether 2,364 banks of different organization in the Empire on the 31st of December last, representing 508,534,000 yen (\$253,249,936) in their capital. Compared with that at the end of the previous month, the above figures show an increase of 33 in the number of banks and 5,042,800 yen (\$2,511,314) in their capital. The following denotes the particulars:

Description.	Number of banks.	Capital paid up.	
		Yen.	
Bank of Japan.....	1	30,000,000	\$14,940,000
Yokohama Specie Bank.....	1	24,000,000	11,952,000
Hypothec Bank of Japan.....	1	10,000,000	4,980,000
Noko Ginko.....	46	28,370,000	13,129,260
Taiwan Ginko.....	1	5,000,000	2,400,000
Bank of Colonization in Hokkaido.....	1	3,000,000	1,494,000
Saving banks:			
Native.....	463	56,004,300	27,934,561
Foreign.....	1	1,250,000	622,500
<i>Ordinary banks.</i>			
Kabushiki Kaisha:			
Native.....	4,528	312,920,765	155,869,401
Foreign.....	7	3,164,450	1,575,896
Gomei Kaisha (native).....	63	15,260,500	7,579,729
Goshi Kaisha (native).....	135	9,909,474	4,934,918
Kabushiki Goshi Kaisha (native).....	1	452,000	225,096
Individual (native).....	26	9,042,520	4,503,175
Total	2,364	508,534,000	\$253,249,936

Swedish and Danish Licenses for Commercial Travelers.—The Department is in receipt of the following report from Consul-General Guenther, of Frankfort, dated February 13, 1901:

The Danish consul at Gothenburg, Sweden, has published the following rules for obtaining a commercial license in Denmark:

The following certificates have to be produced: Either a certificate of the competent authority with reference to the domicile of the commercial traveler, in which it must also be stated whether the applicant travels on his own account or for

others (if the latter is the case, what firms he represents), or a declaration by the firm for which he travels, made before a notary public and legalized by the competent consul. If the applicant travels on his own account, he has to make the declaration himself before a notary.

The license fee for commercial travelers in Denmark, adds Mr. Guenther, is \$42.88 for the first firm and \$21.44 for every additional one, good for one year.

In Sweden, the regulations are less strict. The license fee, however, is higher—\$26.80 for thirty days. There is no restriction as to the number of firms represented. In both countries import duties have to be paid on samples, but under established regulations these charges are remitted when the agent leaves the country.

Commercial Travelers' Licenses in Brazil.—Vice-Consul-General Lowrie reports from Rio de Janeiro, January 16, 1901:

Commercial travelers in Brazil are required by State and town laws to take out licenses for the transaction of business. Heavy fines are imposed for a failure to comply with the regulations, and the police are authorized to arrest any such traveler found without the requisite permit. The charges in different States and cities are as follows:

States and cities.	Charge.	
States:	<i>Milreis.*</i>	
Rio Grande do Sul.....	300	\$50
Bahia.....	1,000	200
Pernambuco.....	200	40
Sao Paulo.....	None.	
Santa Catharina.....per visit...	200	40
Cities:		
Para (annual payment).....	1,000	200
Manaos.....	300 to 500	\$50 to 100
Ceara.....	270	54
Maceio.....	150 to 300	30 to 60
Sao Paulo.....	None.	
Rio de Janeiro.....	None.	

* One milreis paper now equals about 20 cents.

Wharf Concession at Guayaquil.—Vice-Consul-General Reinberg, of Guayaquil, under date of February 18, 1901, transmits copy and translation of a concession of the Ecuadorian Government for the construction of a wharf at Guayaquil, which is summarized as follows:

The wharf is to be 1,500 feet long; it must be made of iron, wooden floored, with steel joists, and roofed with grooved iron. The foundations must be solid. The wharf must have appliances which will enable it to discharge 1,500 tons of

freight in twelve hours. It must be traversed its entire length by a railway connecting store rooms, offices, etc. All materials and machinery for construction are exempt from entrance duty. The wharf must be completed within three years from date of contract; in case of unavoidable delay, the Government will concede an extension of time. For each year of delay, the contractors (Martin Reinberg & Co.) will forfeit to the Government \$100,000 per annum. The maximum capital of the company will be \$973,300. The free use of the river banks is granted, and the wharf shall be constructed in accordance with modern systems adaptable to the character of the Guayas River. During a period of thirty-three years, the contractors are authorized to collect 6 per cent of import duties for wharfage, except on articles imported for the use of the Government; also, 2 sucres (94 cents) per ton for removal to custom-house; the first tax to be paid by the captain or consignee, the latter by parties presenting manifests to customs. Boats loaded exclusively with salt, coal, lumber, rails, or machinery will be free from the second tax. All ships arriving from or clearing for foreign ports are obliged to load and unload at the wharf. The Government retains the privilege of handling the coasting trade at the present wharf. Any difference arising between the Government and the contractors will be adjusted by arbitration, subject to the laws of the country.

Guatemalan Steamship Contract.*—The Department has received from Minister Hunter, of Guatemala, under date of January 29, 1901, translation of the new contract between the United Fruit Company and the Guatemalan Government for the carrying of mails, passengers, and merchandise between New Orleans and Puerto Barrios and other ports of the Republics of Guatemala, Honduras, Nicaragua, Costa Rica, and Colombia. The contract is for three years, counting from January 1, 1901. The steamship company is to make semiweekly trips between Puerto Barrios and New Orleans and to give a fortnightly service with other ports. The Government pays the company a monthly subsidy of \$2,500 currency (\$1,170). Steamers are exempt from port taxes. The company will carry cargo for the Government for 50 per cent less than the usual rates and immigrants for 25 per cent less. A fine of 100 pesos (\$46.80) is imposed on the company for every twenty-four hours of delay in the arrival of its ships and of 200 pesos (\$93.60) every time a voyage is omitted, except when the company can prove that it was not in fault. All questions relative to the interpretation and execution of this contract shall be decided by two arbitrators, one chosen by each party.

Commercial Shipbuilding.—Consul Sawter writes from Glau-chau, February 12, 1901:

England still holds the first rank among the nations of the world in the building of commercial ships. It is shown in Lloyd's register

* See ADVANCE SHEETS No. 912 (December 17, 1900); CONSULAR REPORTS No. 245 (February, 1901).

of English and foreign shipping that from the shipbuilding yards of the United Kingdom 1,442,471 tons of ships were turned out last year, against 861,692 tons turned out by all the other nations combined. If war vessels are added, the respective amounts are 1,510,835 and 1,053,792. In the last three years, however, foreign countries have doubled their output, while England has only increased hers by 50 per cent. Among other nations, the United States last year built 358,557 tons; Germany, 260,751 tons; and France, 165,348 tons. Next came Italy, where, through State premiums, 67,522 tons left the stocks. Germany turned out the largest ship—the *Deutschland*, with 16,502 tons—while four other steamers had each a tonnage of over 10,000 tons. England built eight big ships, four of them being 12,000 tons each and the *Minnehaha* 13,403 tons. France is making no headway with steamers, but, in consequence of subsidies, her sailing fleet increases, whereas England no longer pays attention thereto.

Shipbuilding at Nagasaki.—Consul Harris, of Nagasaki, February 9, 1901, reports the launching, on the 26th ultimo, of the steamship *Kaga Maru* from the Mitsu Bishi Dock Yard and Engine Works, of that city. This vessel was constructed under the shipbuilding encouragement act of the Japanese Government and Lloyd's rules, class 100, A1, and was built to the order of the Nippon Yusen Kaisha (Japan Mail Steamship Company) for its American line. The materials used in its construction were purchased in England, and the keel was laid on the 20th of March, 1900. The ship is to be completed and delivered in March, 1901. A description follows: Type, 3 decks; material, steel; length over all, 459 feet; beam, 49 feet 2 inches; depth, 33 feet 6 inches; gross tonnage, 6,240 tons; displacement, 11,800 tons; draft, 25 feet; dead-weight capacity, 6,820 tons; engines, twin screw, triple expansion; boilers, cylindrical, four in number; indicated horsepower (estimated), 4,500; speed, 15 knots.

Liquid Air and Low-Grade Fuels.—The following, dated February 23, 1901, has been received from Consul-General Guenther, of Frankfurt:

The London Engineer speaks of a remarkable use of liquid air through the invention of a German engineer, Mr. Hempel. He utilized the fact that in the evaporation of liquid air, nitrogen evaporates more rapidly than oxygen, so that finally a gas remains containing a high percentage of the latter element. Mr. Hempel

tried to make use of this in firing with low-grade fuel, like brown coal and peat, and for that purpose constructed a peculiar furnace. At some distance from the firing room a vessel containing liquid air is placed, the contents of which naturally evaporate gradually. The first gases, rich in nitrogen and thereby impeding the process of the burning of the fuel, are allowed to escape; the later gases however, consisting of 50 per cent of oxygen, are led under the grate and cause a lively fire. The practical employment of this ingenious process depends upon the local price of liquid air.

American Goods in the World's Markets.—The following, dated February 1, 1901, has been received from Consul-General Guenther, of Frankfort:

In a recent publication, the Frankfort Chamber of Commerce calls attention to the growing American competition in the markets of the world. It says:

The harbor authorities of Calcutta advertised for bids on locomotives. The lowest English bid was 30,880 marks (\$7,349) for each locomotive, to be delivered within nine months; the lowest American bid was 25,200 marks (\$5,998), delivery within six months. The American firm received the contract. The contract for furnishing a large quantity of cast-iron pipes for the Dutch colonies was some time ago awarded to an American firm, which underbid German competitors nearly 25 per cent. Lately, large orders for rails were placed in America from Holland. Even the English Government is obliged to give Americans the preference over their own works on account of lower prices and quicker delivery, as in the construction of the Uganda bridges. American competition will be felt, especially in the Chinese market, after the cessation of hostilities. A number of new steamers are already being built for the trade between San Francisco and Japan and China.

A movement is on foot to establish a commercial museum at San Francisco after the pattern of that of Philadelphia. This will be of great service to American commerce with East Asia.

Textiles in Smyrna.—Consul Hughes, of Coburg, sends the following under date of January 31, 1901:

A large importer of cotton goods in Smyrna is reported to have said that English manufacturers are losing their hold on that market, owing to sharp American competition—which should, however, be in direct hands and not in that of middlemen. In T cloths, the British article has been steadily declining in favor of American “cabots,” especially cabot “A.” The Lancashire “Mexicans,” though better finished than the American articles, are less durable and are therefore less sought. America furnishes several kinds of white shirtings, which are considered superior to the British manufactures. Prints from the United Kingdom are suffering from the importation

of inferior goods from continental factories and from the revival of a locally manufactured kind of print called "aladja," made of pure cotton yarn dyed in fast colors, cleverly imitating the European designs. The aladjas are very durable, and the demand is steadily augmenting in the interior. For some time past, the United States has also been supplying prints, which appear to be gaining favor with the natives. Drillings (gray and blue) are chiefly from the United States.

Congress against Alcoholism in Vienna.—The Department has received a note from the Austrian legation, dated February 27, 1901, stating that an international congress against alcoholism will be held in Vienna from the 9th to the 14th of April next. The United States Government is invited to send delegates. Members of the congress, except the official delegates of governments, will pay in advance an assessment of 6 crowns (\$1.22), receiving a ticket of membership, which authorizes them to take part in all debates and to receive its reports; also to obtain reduced railway fare. The congress will hold eight public sessions. Reports and speeches can be made in German, French, English, or Italian. The programme includes discussions upon the effects of alcohol; diseases, heredity, degeneration, and criminality caused by its use; and means to combat alcoholism, both of legal and of private initiative. Partisans of the moderate use of liquors, as well as the adherents of total abstinence, are admitted to the congress. Announcements of participation—also demands for information—should be addressed to the Bureau of the VIII International Congress against Alcoholism, Vienna, IX-3 Schwarzpannierstrasse, 17, 1 Stock. Copies of the provisional programme are on file in the Department of State.

Street-Car Heaters in Germany.—Under date of February 11, 1901, Consul Warner, of Leipzig, reports that there is great need for electric heaters in the street cars of that city, the three electric street railways in and about Leipzig not having a single car which is heated either by electricity or coal on the coldest days in winter. Formerly, when horse cars were in use, they were heated by placing coals of fire in iron boxes; but, after several months' trial, the system was abandoned. It is not because there is no cold weather during the winter months, says the consul, that street cars in most of the cities of Germany are not heated, but because the city authorities do not compel the street-railway companies to make their cars comfortable; and, unless required to do so by law, they will not

put themselves to this extra expense. Mr. Warner urges the introduction of American electric street-car heaters, but adds that, in order to meet with success, it will be necessary, first of all, to convince the authorities of the fact that the health of the general public is greatly endangered by riding in unheated cars during the winter months.

Larger Freight Cars for German Railroads.—Consul-General Guenther sends the following from Frankfort, February 27, 1901:

The latest number of the Central News of the Construction Bureau points to what it calls a great progressive step in railroad traffic, viz, the experimental introduction of three-truck freight cars of 25 tons each in place of the two-truck cars of 15 tons each as maximum capacity in common use. The experiment was asked for by the Rhenish mine operators. A former experiment with four-truck cars proved unsatisfactory, as the cars were too heavy in iron and in their gross weight, and many of the wheels could not be used everywhere, especially on the mine roads and factory switch roads. The three-truck cars, however, which will not be much heavier than the present cars, have not these disadvantages. They will, to a large extent, obviate the ever-recurring car famine and will be much more economical in handling. Furthermore, it has been demonstrated, both in theory and practice, that the wear and tear of the track is less with these larger cars. Both the shipper and the railroad management will be benefited by the use of these large truck cars.

German Wire-Nail Trust.—Consul-General Guenther reports from Frankfort, February 19, 1901:

The Frankfurter Zeitung states that the wire-nail trust, during the second half of 1900, sold 2,230,717.6 tons in Germany and 1,952,469.5 tons to foreign countries. While the sales to the latter were only about 300,000 tons less than those made in Germany, a profit of \$280,270 was made on German sales, while the sales to foreign countries yielded a loss of \$204,627. The price of wire nails in Germany is fixed by the trust at \$2.70 per 100 pounds; for export, however, at only \$1.51 per 100 pounds. The German consumers have to pay an excessive price in order to enable the trust to sell its surplus to foreign countries at greatly reduced figures. And still the trust asks an increase of duties of 7 marks (\$1.67) per 220 pounds. The present tariff is 3 marks (71.4 cents) per 220 pounds.

New Incandescent Lamp in Norway.—Under date of February 23, 1901, Consul-General Guenther, of Frankfort, says:

It is reported that Ch. Petersen, of Christiania, has constructed a new incandescent lamp, which is of interest on account of its peculiar arrangement. For the radiation of light, a conductor of the second class, which conducts electricity only when heated, is used, the same as in the "Nerst" lamp. The conductor in this new lamp, however, is not a thread, but a small rod, which is brought to a white heat and thereby emits light. Around this "second-class" conductor a thin metal wire of good conductivity is wound, which is connected with the current conductor by equalizing resistors, which serve the purpose of heating the second-class conductor and increasing the resistance of the current. The second-class conductor takes up the greater part of the current. This arrangement results in a great saving of the electric power, which about equals that of a Nerst lamp, but yields a considerably stronger light.

New Railroads in the Urals.—Under date of February 21, 1901, Consul Hughes, of Coburg, reports as follows:

Compared with the extensive mining operations in the Urals, the transport accommodations have been very inadequate. The railroads in the mining district have a total length of only 312 versts (207 miles), viz, 150 versts (93 miles) belonging to the Demidof factories, 100 versts (66.3 miles) in the Bogolowski district, 40 versts (26.5 miles) belong to Alapajewsk, and 22 versts (14.6 miles) to Lyowa. Preliminary surveys are being made for the purpose of constructing new railroads which will bring the total length of track up to 1,792 versts (1,188 miles). One line will connect the Lywenski works with the existing Samara-Slatouet line, and will be 720 versts (477 miles) long; while a second line, 760 versts (504 miles), will run in the direction of Newjansk-Irbit-Tabarinokoje. These lines, it need scarcely be mentioned, will be a great help to the mining and reduction furnace work in the Urals.

New Smelter in British Columbia.—Consul Dudley, of Vancouver, reports, March 13, 1901, that the town of Kaslo has offered a bonus of \$50,000 and exemption from taxation for ten years to any person or corporation that will erect a smelter at that place. It is understood that a company has already been organized to build the smelter, and it may be too late for anyone from the United States to take advantage of this offer. But there will undoubtedly, adds the consul, be a market for machinery, materials, and supplies,

which enterprising Americans may be able to supply. The construction of the smelter must be commenced before October 1 next. Kaslo is the center of a great silver-lead-producing district, and a smelter ought to be a good paying investment. The consul says that he will be glad to furnish full particulars of the offer, and also regarding the several tributary mines, to persons interested in the matter.

Trade of German East Africa.—Consul-General Guenther, of Frankfort, under date of February 7, 1901, quotes from a German trade journal the following figures, showing the trade of German East Africa in the last three years:

Year.	Imports.		Exports.	
	<i>Marks.</i>		<i>Marks.</i>	
1897.....	9,042,078	\$2,152,085	4,938,505	\$1,175,364
1898.....	11,852,656	2,820,932	4,332,945	1,031,241
1899.....	10,822,585	2,575,775	3,937,150	937,042

One of the principal causes of the stagnation of the East African trade, adds the article, may undoubtedly be found in the circumstance that in the neighboring districts, transport facilities of every kind are being created, whereas German East Africa is still handicapped by the transport by caravan. Traders naturally prefer the quicker and cheaper routes. This is particularly noticeable in the ivory trade, which has suffered from the opening of new routes in the neighboring colonies, which has caused a great falling off in the export business.

Sugar Production in British Central Africa.—In transmitting, under date of February 19, 1901, the following article from the Home and Colonial Mail, Consul Hughes, of Coburg, calls the attention of American manufacturers of sugar-cane machinery to this new sugar-producing field, where our improved apparatus and tools will undoubtedly be needed:

British Central Africa will soon occupy a prominent position as a sugar-producing country. In the rich, fertile district around the Lower Zambezi and the Shire rivers, the sugar industry already promises to become very important within the next few years. One company alone has 1,100 acres under cultivation at the present time and shortly intends to bring in a further tract of 2,500 acres, while several other companies and private planters are either making preparations for planting sugar or have already started plantations. The land, according to reports recently to hand, is highly suited to the growth of sugar cane, and there seems to

be an ample supply of labor, while the sugar grown is said to be superior to that of Egypt. Sugar-cane growing is an industry, moreover, that gives a good return for a comparatively small outlay of capital, and, with the experience gained in Natal, the district round Chinde should speedily become one of the great cane-sugar-producing centers of the world.

Fishy Butter in Australia.—Consul Goding, of Newcastle, January 29, 1901, reports that a discovery of importance to the dairy interests of the world has been made by the agricultural department of New South Wales. As the result of experiments with regard to "fishy" butter, the dairy expert has succeeded in isolating the microörganism which causes that disease. For several years, says Mr. Goding, this matter has been the subject of scientific investigation, the peculiar liability of butter to become fishy being one of the greatest difficulties to be contended with in the export trade of this article. Hence the discovery is not only of scientific interest, but of considerable commercial importance. The consul adds that not only is the expert satisfied as to the correctness of his diagnosis, but that he has inoculated sterile cream with the organism and actually succeeded in producing fishy butter.

Export Duty on Wool Reduced in Argentina.—Consul Ayers reports from Rosario, February 1, 1901, that a 33½ per cent reduction in the valuation of wool for export has been announced. A newspaper clipping inclosed by Mr. Ayers says that the low price of wool has caused a paralysis in that industry. The export duty on wool is 4 per cent on a valuation of \$3 gold per 10 kilograms (22.046 pounds); but the present average value on embarkation does not exceed \$2 gold, so that the duty represents an increase of the duty from 4 to 6 per cent. It has therefore been decreed that \$2 gold per 10 kilograms shall be taken as the value, to take effect February 1 and continue while the present low prices are maintained.

Commercial Museum in Caracas.—Consul-General Guenther, of Frankfort, under date of January 31, 1901, reports:

The Chamber of Commerce of Düsseldorf states that in the near future a commercial museum will be instituted at Caracas to exhibit European industrial and art products; it will receive governmental aid. Branch museums will be opened in Valencia, Maracaibo,

Ciudad Bolivar, Barquisimete, and other suitable places. Goods for the museum will be admitted free of duty; this will be exacted only after the goods are sold. No expenses will be charged to the exhibitors. These are advised to send at least five copies of samples and price lists, so that the branches can also be supplied.

Substitute for Rubber.—The Department is in receipt of the following report from Consul Nelson, of Bergen, dated February 6, 1901, relative to the discovery of a cheap substitute for rubber:

After having experimented for several years, a Copenhagen chemist has succeeded in producing a material called "solicum," which possesses qualities that will render it of the greatest importance to the caoutchouc industry. It is produced, it seems, from asphalt, and can be used for the manufacture of linoleum, rubbers, insulators, etc. It is also claimed that the material can be used as a paint, in all colors, and that it is absolutely waterproof.

Steamship Line between Odessa and the Persian Gulf.—Under date of February 11, 1901, Consul-General Guenther, of Frankfort, writes as follows:

It is reported from St. Petersburg that the Russian society for steamer traffic and commerce will inaugurate a regular steamship line for freight between Odessa and the ports of the Persian Gulf. The line receives a subsidy from the Government. The steamer *Kornilow* will leave Odessa on February 14, 1901, loaded with Russian petroleum, refined sugar, and cotton textiles. Many exporters of manufactures from Moscow will go to Persia on the *Kornilow* for the purpose of establishing trade relations, and it is expected that the line will be largely patronized by pilgrims to Mecca.

Russian Duties on United States Imports.—Under date of February 18, 1901, Consul-General Guenther reports from Frankfort:

The Frankfurter Zeitung of this morning, under the heading "The Russian-American tariff war," contains a telegram from St. Petersburg, dated February 16, which reads as follows:

The increase of customs duties of 30 per cent on American industrial products, to go into effect February 27, refers to all kinds of manufactures of cast iron, of iron and steel, iron and steel boilers; also, knitting machines, tool machines, etc.

In St. Petersburg commercial circles, these directions of the Secretary of the Treasury are looked upon as the answer to the differential tariff rates which have been laid upon Russian sugar in the United States.

For the German iron industry, this measure will be of the greatest importance, as the United States will no longer be able to compete in the Russian market with Germany.

Russian Emigration to America.—Consul-General Guenther writes from Frankfort, January 31, 1901:

It is reported from St. Petersburg that the people belonging to the religious sect called Duchoborzens have left the Caucasus and found a new home in Canada. The Molukanes, another Russian sect residing in Transcaucasia, also wish to emigrate to North America. They number about 50,000, and are located in Tiflis, Jelisawetpol, Baku, and Kars. They are known as industrious agriculturists, and are prompted to emigrate on account of lack of land and increased taxation.

Production of Steel by Electricity in Sweden.—Consul Nelson, of Bergen, under date of January 30, 1901, reports a successful attempt to produce steel by electricity in Sweden. The consul says:

The experiments are being carried on at Gysinge factory, Sweden, and about 25,000 pounds of steel are produced in six drafts daily. The steel is of an excellent quality and meets with ready sales at high prices. On account of the relatively cheap method of production, the profits are large, but as the electrical power is limited, the output is insignificant. To overcome this drawback, plans have been formed for the erection of a large electric plant near the Dalalfuen River, the water power of which will be utilized. This will enable the company to carry on the manufacture of steel by electricity on a large scale.

American Tubing in Great Britain.—Consul Marshal Halstead, of Birmingham, under date of February 19, 1901, says that the Birmingham Daily Mail is responsible for the statement that a "ring" of English tube makers, by excessive demands at the last bidding, forced the Birmingham gas committee to purchase American-made tubing for fittings. The British quotations, he adds, were so high that an American firm succeeded in selling tubing "at a figure which no one in England could touch, and not only was the price cheap, but the quality was vastly superior." Although the combination is not so strong this year, "so satisfactory has the American product proved that it will hardly be surprising if the gas committee," now ready for a new purchase, "asks for tenders from America."

Reduction of Wages of British Iron Workers.—Under date of February 19, 1901, Consul Marshal Halstead, of Birmingham, says that in view of the general depression in the British iron trade, it is announced that the employees of the Derby Iron Works Company have accepted a reduction in wages of 73 cents, this being, the Birmingham Daily Mail says, a 5 and 10 per cent reduction, respectively, for furnace men and laborers. "It is my understanding," adds Mr. Halstead, "that wages in all branches of the British iron industry have been higher the last year and a half than ever before."

Naval and Military Exhibition in Great Britain.—The Department has received a prospectus of the naval and military exhibition to be opened at the Crystal Palace, Sydenham, May 2, 1901, comprising exhibits in connection with the transport and equipment of the army and navy, progress in naval architecture in its application to purposes of national defense and commerce, etc. Those interested are invited to exhibit. They should address the secretary of the exhibition, Lieut. Col. Charles Francis Massy, 20 Victoria street, Westminster, London. The exhibition will remain open five months.

International Art Exhibition at Munich, 1901.—The Department has received a note from the German embassy, dated Washington, February 23, 1901, transmitting an invitation of the Bavarian Government to the United States to take part in the eighth art exposition which is to be held in Munich this year, either by sending an official exhibit or a representative. The exhibition will be opened on June 1 and closed at the end of October, 1901. It will be held in the Crystal Palace. The hope is expressed that the artists of the United States may have a liberal representation.

Commercial Attachés at German Consulates.—Consul-General Guenther, of Frankfort, February 14, 1901, says that the Official News for Commerce and Industry, in a recent issue, notes the appointment of commercial experts as attachés to the German consulates at Buenos Ayres, Constantinople, New York, and St. Petersburg. This move, adds the consul-general, is significant as showing the efforts Germany is making to increase the efficiency of her consular service, and is but a part of her general scheme of developing most advantageously foreign markets for her exports.

Technical High School for Breslau.—Consul-General Guenther, of Frankfort, February 21, 1901, reports that a number of the chambers of commerce of the province of Silesia, as well as the industrial and trade associations and the common council of the city of Breslau, the capital of the province, have petitioned the Prussian Government to establish a technical high school at Breslau. The petition, says the consul, states that the need of such a school in eastern Prussia is nowhere so great as in the province of Silesia, and that no other city is as well adapted for its location as Breslau.

Street-Car Advertising in Leipzig.—Under date of February 25, 1901, Consul Warner reports from Leipzig that a new method of street-car advertising was started in that city on the 1st of January last. It is described briefly as follows:

In every street car are hung copies of a biweekly newspaper called the *Leipziger Strassenbahn Zeitung*, a journal which contains advertisements, railroad time-tables, a few jokes, and notices of the performances to be given at the different theaters. The newspapers are fastened on racks which are hung upon hooks in the corners of the cars. The passengers have the privilege of taking the papers down and reading them.

Milk Adulteration in Germany.—Consul-General Guenther, of Frankfort, February 11, 1901, writes that, according to the report of the Heilbronn board of health, of 122 samples of milk examined 67 proved to be adulterated with 20 to 120 per cent of water.

Under date of February 25, Mr. Guenther adds:

A test of 3,794 samples of milk, made in Hamburg in 1900, resulted in proving 12 per cent objectionable; 25 per cent of this on account of addition of water. Fifty per cent of the cans were objected to. A member of the board of health has prepared statistics showing that 8 per cent of the children born in that city die in consequence of malnutrition.

Saxe-Altenburg Chamber of Commerce.—Consul Warner reports from Leipzig, February 7, 1901, that the business men of the Duchy of Saxe-Altenburg have organized a chamber of commerce. Formerly, a business men's club was the medium through which matters of commercial importance were discussed. The principal

industries of the Duchy of Saxe-Altenburg are farming, brown-coal mining, and manufacturing of briquettes, woolen dress goods, cotton and leather gloves, musical instruments, machinery, drugs, and chemicals.

New Steel for German Industries.—Consul-General Guenther, of Frankfort, February 4, 1901, notes that German papers are discussing an expected revolution in the equipment of works employing tool machines, on account of the use of "Böhler's rapid" steel. New tool machines have been ordered by many German establishments, those now in use being of too light construction to meet the increased cutting velocity of the new steel.

Rome-Naples Electric Railway.—Consul-General Guenther, of Frankfort, February 27, 1901, writes that, according to German press reports, the project involving the construction of an electric railway between Rome and Naples, which was agitated some time ago but afterwards abandoned, has been revived. Two Neapolitan engineers, it is stated, have prepared new plans for the road, which have been submitted to the ministry of public works. The contemplated railway will run along the shore via Cancellò, Mondragone, Minturno, Formia, Fondi, Terracina, and Cisterna to Rome, with a branch line, by way of Marano and Giugliano, to Capodimonti, the summer residence of the King. It will be double tracked, with a total length of 135 miles.

French Purchase of Coal.—Consul Jackson, of La Rochelle, February 17, 1901, informs the Department that the French State Railway (Chemins de Fer de l'Etat) has recently purchased 100,000 tons of Cardiff coal at 16 francs (\$3.09) per ton, delivered, duty paid, on cars at the La Pallice basin, La Rochelle, within twelve months. The consul adds that the exceedingly low price paid for this coal has caused much surprise both in France and in England.

Change of Railway Time in Spain.—Consul-General Lay, of Barcelona, under date of January 18, 1901, transmits copy of a Spanish royal decree fixing the official time on all Spanish railroads, after January 1, 1901, according to Greenwich meridian, instead of that of Madrid, as heretofore. The decree also designates the hours from noon until midnight by the numbers 13 to 24, and all time-tables and railway clocks have been changed accordingly.

Municipal Tramways in Berlin.—Under date of January 31, 1901, Consul-General Guenther writes from Frankfort:

The *Local-Anzeiger*, of Berlin, states that on January 30, 1901, the city paid 10,000,000 marks (\$2,380,000) to the firm of Koenen & Co., thereby becoming proprietor of the Siemens & Halske street-car lines. The shares of stock have been delivered to the magistracy.

New Telegraph Line between Berlin and Odessa.—Under date of February 23, 1901, Consul-General Guenther, of Frankfort, says it is reported that the Russian Government, in order to facilitate the telegraphic business between Odessa and Berlin, will construct a direct line between these two cities. Work on the new line will be commenced in the spring.

English Demand for Machines for Printing Paper Hangings.—Acting Consul-General Westacott, of London, March 4, 1901, reports that he has received a number of inquiries for the names and addresses of firms in the United States manufacturing machines for printing paper hangings. Replies should be sent to the consulate-general.

Brazilian Rubber Concession.—Consul Kenneday writes from Para that he is informed that the State of Amazonas, desiring to develop the rubber trade in that section, offers a reduction of 10 or 15 per cent of the export duties on rubber, and permission to cut and pack in its own bonded stores, to a syndicate that will take charge of the trade; the price to be paid for this concession being \$2,000,000.

Canadian Preferential Tariff.—Consul-General Turner reports from Ottawa, February 23, 1901, that a member of the House of Commons has given notice that he will make a motion not to allow the preferential tariff of $33\frac{1}{3}$ per cent on English goods unless they come to Canada by Canadian ports. If this motion prevails, adds Mr. Turner, it will quite seriously affect the steamship lines of Portland, New York, and Boston.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
M. J. Bachr, Magdeburg.....	Feb. 27, 1901	Sugar-beet seed.....	Department of Agriculture.
R. Guenther, Frankfort.....	Mar. 3, 1901	Federal revenues of Germany.	Treasury Department.
Do.....	do	Sentence of German factory director, etc.	Department of Labor.
Do.....	Mar. 5, 1901	Blacklisting of strikers....	Do,
Do.....	Mar. 9, 1901	German armor plate.....	Navy Department.
Do.....	Mar. 11, 1901	German fisheries.....	Fish Commission.
Do.....	Mar. 15, 1901	Population of Bohemia....	Census Bureau.
Do.....	Mar. 26, 1901	Poorhouses of Saxony.....	Department of Labor.
Do.....	Mar. 27, 1901	Fruit trees in Prussia.....	Department of Agriculture.
Do.....	do	Rapid-fire guns.....	Navy Department.
Do.....	Mar. 28, 1901	Domestic animals in Prussia.	Department of Agriculture.
O. J. D. Hughes, Coburg.....	Mar. 23, 1901	Emigration from German ports.	Bureau of Immigration.
J. F. Winter, Annaberg.....	Feb. 19, 1901	Rice crop of India.....	Department of Agriculture.
B. H. Warner, jr., Leipzig....	Feb. 15, 1901	New Saxon loan.....	Treasury Department.
F. W. Mahin, Reichenberg....	Feb. 25, 1901	Strikes in Austria.....	Department of Labor.
J. F. Monaghan, Chemnitz....	Mar. 8, 1901	German imports of wheat and rye.	Department of Agriculture.
E. C. Bellows, Yokohama.....	Feb. 18, 1901	Rice crop of Japan.....	Do,
L. L. Stang, Saigon.....	Jan. 31, 1901	Rice-market report.....	Do,
T. Smith, Moscow.....	Mar. 11, 1901	Moscow meat market.....	Do,
M. W. Gibbs, Tamatave.....	Feb. 18, 1901	Labor decree.....	Department of Labor.
W. F. Grinnell, Manchester..	Mar. 18, 1901	Health of England.....	Marine-Hospital Service.
J. E. Kehl, Stettin.....	Mar. 15, 1901	Labor and industry.....	Department of Labor.
J. C. Covert, Lyons.....	Mar. 3, 1901	Edible pastes.....	Department of Agriculture.
J. L. Bittinger, Montreal.....	Apr. 3, 1901	Crime in Canada.....	Bureau of Education.
E. Schneegans, Saigon.....	Feb. 14, 1901	Rice-market report.....	Department of Agriculture.

Lottery Suppressed in Canada.—Consul-General Bittinger writes from Montreal, February 26, 1901:

The lottery evil, although without any real sanction of law, existed for a long time in Canada, particularly in the city of Montreal. It was suppressed by law January 1, 1901. The managers have closed their shops.

United States Railway Material in Chile.—Consul Caples, of Valparaiso, January 28, 1901, reports, as an instance of the increasing trade in railway material between the United States and Chile, that within the past week the Pittsburg branch of the Carnegie Steel Company has sold 16,000 tons of steel rails to the Chilean Government, to be delivered in the near future.

Contract for Montevideo Port Works.—The Department has received from Minister Finch, of Montevideo, under date of January 30, 1901, copy and translation of the contract for the improvements of the port at that city.* The papers are filed for reference in the Department of State.

Automobile Sleigh in Germany.—Consul-General Guenther, of Frankfort, February 23, 1901, reports the appearance at Nuremberg of the first automobile sleigh. The vehicle glides along with great speed and a perfectly easy motion. It was constructed by the Nuremberg Motor-Vehicle Factory Union.

* See ADVANCE SHEETS No. 981 (March 11, 1901).

FOREIGN REPORTS AND PUBLICATIONS.

Mineral Wealth of Bolivia.—The following has been summarized from a work published by the Bolivian statistical office:

It is difficult to give even an approximate idea of the mineral wealth of Bolivia; it may be said to comprise nearly every mineral known. Gold, silver, and copper were the metals best known to the aborigines; but iron, tin, lead, copper, bismuth, cobalt, aluminum, and antimony are also found in abundance and in the most varied combinations.

Tin, on account of its increasing industrial uses, is one of the most important metals. The tin of Bolivia is found to be as pure and as rich as that of Malacca, and to be superior to that of Cornwall. The districts producing tin are situated on the eastern slopes of the Cordilleras of the Andes, extending from north to south for a distance of more than 300 miles. The Departments of Potosi, La Paz, and Oruro are chiefly represented in the production of tin. The most important mine is that of Huanuni of Oruro, which was worked on a small scale in very ancient times. Under the present system of working, this mine produces about 100 tons per month; the principal vein worked varies in width from 2 to 8 feet. The deposits can not properly be called veins, on account of their irregularity and the number of dislocations. The richest tin is generally found at the bottom, giving 50 per cent of the oxide. The mines of La Paz are some 16,000 feet above the level of the sea; that of Chorolque is also worked for bismuth—tin being found on one side of the vein and bismuth on the other. This mine is worked by German engineers. The whole output from this district is only about 200 tons of tin per year. The total exportation of tin from Bolivia is estimated at from 400 to 500 tons per month.

During the first six months of 1899, 396,608 pounds of bismuth were exported, 1,536,386 pounds of antimony, and 8,460,814 pounds of copper. It is certain that if modern methods of mining were employed, especially smelting furnaces, there would be a notable increase of production.

Bolivia has in her territory 11,533 miles of navigable rivers; she has also in recent years notably improved her means of communication with the outside world. In 1899, she had 574 miles of railway in operation and 1,787 were projected; her telegraph lines extended over a distance of 2,020 miles.

The agricultural products of Bolivia are noted for their superior quality. The coffee of Yungas equals Mocha in delicacy of aroma. Bolivian sugar is celebrated for its fine crystallization, the cotton for the exquisite fineness of its thread, while the wool rivals that of Angora in the size and silkiness of the fleece.

Petroleum is found in three Departments, hard coal in one, and peat in the greatest abundance in several districts.

Rubber in Bolivia.—The Board of Trade Journal, of London, gives interesting information regarding the rubber industry of Bolivia, taken from a report of the Belgian consul-general at Santiago:

The principal centers of the rubber industry are in Beni and the province of Caupolicán. A customs office has been established at Villa Bella, situated at the confluence of the Beni and Mamore, to collect the export duties on the rubber

leaving the country. The River Madeira, formed by the union of these two rivers, is not navigable beyond San Antonio, a distance of 100 leagues. No less than eighteen large waterfalls and seventy-two rapids interrupt navigation and necessitate the canoe and its cargo being dragged overland. Besides the difficulties of navigation, the unhealthiness of the climate—arising from the malaria of the marshes—has to be taken into account, as well as the possibility of attacks from the Indians; the mortality among the men engaged in the conveyance of merchandise often reaches 50 per cent. The cost of transport is about 87 cents per arroba (25 pounds) gross weight going down and \$1.57 for the journey up stream, the canoes carrying on the return trip the necessary provisions for the factories. Losses due to shipwreck average 5 per cent of the cargo. Insurance companies refuse to issue policies on cargoes and goods for Beni. The processes of extracting rubber are very rudimentary and entail great waste. There are three kinds of Bolivian rubber:

(1) "Fina" india rubber, which has been smoked perfectly, possesses no impurity, has the sap fresh, without showing any signs of coagulation; price at La Paz, \$82 to \$88 per cwt.

(2) "Entre fina" rubber, which has undergone the same process as the "fina," but which is not in as good condition.

(3) "Sernamby," raw india rubber, which has not been treated and has solidified by the natural coagulation of the latex, an operation which takes place spontaneously a few hours after the sap is extracted from the tree; price at La Paz, \$47 to \$72 per cwt.

The best rubber comes from trees growing on land which is covered by water all the year round; that coming from trees the roots of which are under water only a part of the year is not of such good quality.

On high ground, caoutchouc, inferior to rubber, is found in abundance.

Both black and white caoutchouc are found in Bolivia along all the water courses flowing toward the Amazon. To collect the sap, paths are made in the forest connecting the different trees yielding rubber. These paths, from 1½ to 3 miles long, connect from 100 to 150 rubber trees producing 1¾ gallons each. There were in 1896 on the rivers Alto Beni, Madeira, Madre de Dios, Bajo Beni, Orton, and Zehuanman, 66 rubber-collecting establishments with 8,936 paths, employing 2,534 picadores, and producing 72,460 arrobas.

For the whole of Bolivia, the production of india rubber in 1899 was as follows:

Districts.	Quantity.	Value.
	<i>Pounds.</i>	
Rio Acre region.....	4,409,200	\$3,808,696
Beni	1,907,522	1,586,142
La Paz.....	565,573	488,545
Puerto Suarez.....	64,568	54,405
Total.....	6,946,863	5,937,788

The export duties are: On fine india rubber, 3 cents per pound; on common sernamby rubber, 2.3 cents.

The following figures show the development of exports from 1893 to 1899 from the ports of Puerto Perez (Chililaya) and Mollendo:

	<i>Pounds.</i>
1893.....	28,772
1894.....	83,762
1895.....	140,032
1896.....	295,112
1897.....	398,347

Gutta-Percha in Dutch India.—The *Nachrichten für Handel und Industrie*, of Berlin, in a recent edition, says:

The increasing inquiries about gutta-percha have directed attention to the extraction of this important product in Java and the neighboring islands. The question first arose when various cable lines were being constructed. It was seen that the wild trees would no longer be able to supply the demand, and a trial was made of manufacturing the juice from the leaves of the gutta-percha trees, and this process has now become an important branch of this industry. A company for its development has been formed in Batavia, modeled after the Borneo Gutta-Percha Company, with a capital of \$200,000. This company expects to buy the factory on the Kapoeas River, in the western part of Dutch Borneo. The factory is supplied with machinery for the extraction of gutta-percha from the fresh leaves by a process invented by a Frenchman. The plant costs \$15,000 and it is estimated that the capital demanded will not exceed \$20,000.

Asphalt and Petroleum in Venezuela.—In *Nachrichten für Handel und Industrie*, Berlin, March 8, 1901, the following appears:

Two places in Venezuela are of importance in the world's trade of asphalt, both near the mouth of the Orinoco, offering convenient shipment. One of these mines is the property of a German company. The product is a liquid asphalt containing about 40 per cent of oil. The bed from which this oil is derived is located from 40 to 80 feet beneath the surface and is composed of fine sand saturated with asphalt oil of an alleged thickness of over 40 feet. The second asphalt bed is situated near Guanaco, some 7 miles west of Guariquen, on the Gulf of Paria. This asphalt is nearly solid, covering a surface nearly ten times as large as the asphalt sea of Trinidad. The product is purer than the English asphalt, containing only about 4 per cent of earthy admixture. This mine belongs to a New York and Bermuda company. The presence of petroleum is announced in different places in the east and also on the coast, west from Puerto Cabello, in the vicinity of Tocuyo, Capadare, and Curamichate. In the temporarily inaccessible hilly country—Lachira—there are further signs of large petroleum beds.

Resources of Lower California.—The following is summarized from an article published in *La Soberania Popular*, La Paz:

The peninsula of Lower California, which is traversed throughout by a continuation of the Sierra Nevada, is, above all, a mineral country. The mines of Boleo and Progreso are well known; other mining centers of importance are Calmalli, Rosarito, and the famous Sta. Clara mine.

The fisheries for oyster pearl and tortoise shell in the Bay of La Paz and the salt mines of the island of Carmen are noted. The soil of Lower California is so fertile that its rich vegetable productions suffer less from drought than from the neglect of the cultivators. The greatest attention is paid to the growing of the grape and the making of wine and brandy, the exportation of which, together with that of the grape husks, forms one of the peninsula's chief sources of wealth.

Cultivation of the Roman Campagna.—A report in *Nachrichten für Handel und Industrie* Berlin, March 1, 1901, has been summarized as follows:

The vast plain of the Roman Campagna is estimated to contain about 495,000 acres; 235,000 acres are adapted to agriculture and about one-fourth is cultivated in grain, according to the old-fashioned rotation of crops, the land in fallow years being farmed out for sheep raising. The entire tract of land is divided into 362 estates, the owners of which farm out their lands for a term of years to tenants. As a rule, the tenants own agricultural tools, cattle, and working capital. In earlier times, they were proverbially rich; but in the last thirty years, since there has been competition with Russian and American grain, they have lost ground. Efforts have been made by the Government to improve the system of cultivation, but things go on as before. The Government has also been interested in the improvement of the Tiber; but the mouth at Fiumicino is so filled up with sand that it is navigable only for vessels of small tonnage, and the railway connecting Rome with Fiumicino has discontinued on account of lack of traffic. A magnificent project for reclaiming all the unhealthy and uncultivated lands of Italy has been laid before the Italian Parliament.

Railways in the French Colonies.—According to *La Dépêche Coloniale*, Paris, the year 1900 showed great activity in the railway construction of the French colonies. The Doumer programme is being actively carried out in Indo China; in Dahomey, the track of the projected road to the Niger has been completed for the plate layers for more than 62 miles. The line from Konakry to the Niger is advancing slowly, while the Djibuti-Harrar is completed for a distance of 93 miles; the first section of this road offers the greatest difficulties of the Ethiopian railway network.

New Coal Fields in South Africa.—*Nachrichten für Handel und Industrie*, Berlin, January 15, 1901, says that the discovery of rich coal fields some 400 square miles in extent is confirmed by a report of the British South African Company. The fields are situated about 180 miles northwest of Lubomayo. The work of developing them will soon be commenced. This important district will quickly be opened after the completion of the Cape-Cairo Railway to the central point of the coal fields and to the Victoria Falls.

Resources of Spanish Guinea.—*La Politique Coloniale*, Paris, contains the following:

Ebony and mahogany are the most important articles of export from Spanish Guinea; both of these woods are found in very considerable quantities. Caoutchouc and palm oil are also exported, and quite recently copra has been added, though

it has not yet become a very important article of export. Coffee, cacao, and vanilla plantations have also yielded very gratifying results. The colony exports great quantities of ivory; elephant tusks weighing 176 pounds are not unusual. Panther skins, if the natives knew how to prepare them better for market, might become a notable factor in the export trade of this country.

Peat in Uruguay.—The *Nachrichten für Handel und Industrie*, Berlin, March 13, 1901, reports that large beds of peat have been found in the Departments of Maldonado and Rocha, Uruguay. The existence of these beds has been known for some time, but no attempt has been made to utilize them. Recently, capitalists from Argentina have begun examining them, and if the result is satisfactory, companies for working the beds will be formed. A good market for compressed turf will be found in Montevideo, Buenos Ayres, and La Plata.

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Full directions for binding the Consular Reports are given in No. [131](#), page [663](#).

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

V.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Flies in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

X PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Fires in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation, School Gardens; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1901, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1896, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, and 1884-1887 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U. S. gold.	Coins.
Argentine Republic.	Gold and silver.	Peso.....	\$0.96,5	Gold—argentine (\$4.82,4) and $\frac{1}{2}$ argentine; silver—peso and divisions.
Austria-Hungary*.	Gold	Crown.....	.20,3	Gold—20 crowns (\$4.05,2) and 10 crowns.
Belgium	Gold and silver.	Franc.....	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil.....	Gold	Milreis.....	.54,6	Gold—5, 10, and 20 milreis; silver— $\frac{1}{2}$, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do .....	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo (\$1.25), doubloon (\$4.65), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centesimos.
Cuba	Gold and silver.	Peso.....	.92,6	Gold—doubloon (\$5.01,7); silver—peso (50 cents).
Denmark	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland.....	.....do	Mark.....	.19,3	Gold—10 and 20 marks (\$1.93 and \$3.85,9).
France	Gold and silver.	Franc.....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling.	4.86,6 $\frac{1}{2}$	Gold—sovereign (pound sterling) and half sovereign.
Greece.....	Gold and silver.	Drachma.....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti .....	.....do	Gourde.....	.96,5	Silver—gourde.
India *.....	Gold	Rupce.....	.32,4	Gold—sovereign (\$4.8665); silver—rupee and divisions.
Italy.....	Gold and silver.	Lira .....	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan †.....	Gold.....	Yen.....	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia .....	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver.	Florin .....	.40,2	Gold—10 florins; silver— $\frac{1}{2}$, 1, and 2 $\frac{1}{2}$ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—\$2 (\$2.02,7).
Peru §.....	.....do	Sol .....	.48,7	Gold—libra (\$4.8665); silver—sol and divisions.
Portugal.....	.....do	Milreis.....	1.08	Gold—1, 2, 5, and 10 milreis.
Russia |.....	.....do	Ruble.....	.51,5	Gold—imperial (\$7.718) and $\frac{1}{2}$ imperial (\$3.80); silver— $\frac{1}{4}$, $\frac{1}{2}$, and 1 ruble.
Spain.....	Gold and silver.	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver.	Franc.....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey.....	Gold	Piaster.....	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay .....	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver.	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

‡ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

§ Gold standard adopted October 13, 1900.

| For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 234.

XIV VALUES OF FOREIGN COINS AND CURRENCIES.

B.—Countries with fluctuating currencies, 1874-1896.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1892.	1896.
Austria-Hungary*	Silver.....	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.31,6	\$0.42
Bolivia.....	do.....	Dollar until 1880: bolivi- ano there- after.	.90,5	.90,5	.81,2	.69,9	.68	.85
Central America.....	do.....	Peso.....	.90,5	.91,8		.69,9	.68	.85
China.....	do.....	Haikwan tael..	1.61					
Colombia.....	do.....	Peso.....	.90,5	.90,5	.81,2	.69,9	.68	.85
Ecuador.....	do.....	do.....	.90,5	.91,8	.81,2	.69,9	.68	.85
Egypt†.....	Gold.....	Pound (100 piasters).		4.97,4	4.97,4	4.94,3		
India.....	Silver.....	Rupee.....	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan.....	Gold.....	Yen.....	.99,7	.99,7		.99,7	.99,7	.99,7
Mexico.....	Silver.....	do.....		.87,6	.87,6	.75,3	.73,4	.91,7
Netherlands‡.....	Gold and Silver.	Dollar.....	1.04,74	.99,8	.88,2	.75,9	.73,9	.92,3
Peru.....	Gold.....	Florin.....	.40,5	.38,5				
Russia.....	Silver.....	Sol.....	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia.....	do.....	Ruble.....	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli.....	do.....	Mahbub of 20 piasters.	.87,00	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1895.	1896.
Austria-Hungary*	Silver.....	Florin.....	\$0.38,1	\$0.34,1				
Bolivia.....	do.....	Boliviano.....	.77,1	.69,1	\$0.61,3	\$0.51,6	\$0.45,5	\$0.49,1
Central America.....	do.....	Peso.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Colombia.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Ecuador.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
India.....	do.....	Rupee.....	.36,6	.32,8	.20,2	.24,5	.21,6	.23,3
Japan.....	do.....	Yen.....	.83,1	.74,5	.66,1	.55,6	.49,1	.52,9
Mexico.....	do.....	Dollar.....	.83,7	.75	.66,6	.56	.49,5	.53,3
Peru.....	do.....	Sol.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Russia.....	do.....	Ruble.....	.61,7	.55,3	.49,1	.41,3	.36,4	.39,3
Tripoli.....	do.....	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.41,1	.44,3

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at £4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40,2 cents.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1898.				1899.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia.....	Silver boliviano.....	\$0.42,4	\$0.40,9	\$0.41,8	\$0.43,6	\$0.43,9	\$0.43,4	\$0.44,3	\$0.43,6
Central America.....	Silver peso.....	.41,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
China.....	Amoy tael.....	.68,5	.66,2	.67,6	.70,6	.71	.70,2	.71,6	.70,5
	Canton tael.....	.68,3	.66	.67,4	.70,4	.70,8	.70	.71,1	.70,3
	Chefoo tael.....	.65,5	.63,3	.64,6	.67,5	.67,9	.67,2	.68,4	.67,4
	Chinkiang tael.....	.66,9	.64,6	.66	.69	.69,3	.68,6	.69,9	.68,9
	Fuchau tael.....	.63,4	.61,2	.62,5	.65,3	.65,6	.65	.66,2	.65,2
	Haikwan tael.....	.69,7	.67,3	.68,8	.71,8	.72,2	.71,4	.72,8	.71,8
	Hankau tael.....	.64,1	.61,9	.63,2	.66	.66,4	.65,7	.67	.66
	Hongkong tael.....	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.64,3	.63	.65	.67,9	.68,2	.67,5	.68,8	.67,8
	Niuchwang tael.....	.65,9	.62	.63,4	.66,2	.66,5	.65,9	.67,1	.66,1
	Shanghai tael.....	.62,6	.60,4	.61,7	.64,5	.64,8	.64,1	.65,4	.64,4
	Swatow tael.....	.63,3	.61,1	.62,4	.65,2	.65,5	.64,9	.66,1	.65,1
Colombia.....	Takao tael.....	.66	.66,6	.68	.71	.71,4	.70,7	.72	.71
	Tientsin tael.....	.66,4	.64,1	.65,5	.68,4	.68,8	.68	.69,4	.68,3
Ecuador.....	Silver peso.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
India.....	do.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
India.....	Silver rupee†.....	.20,1	.19,1	.19,9	.20,7	.20,8	.20,6	.21	.20,7
Mexico.....	Silver dollar.....	.46	.44,4	.45,4	.47,4	.47,7	.47,2	.48,1	.47,4
Persia.....	Silver kran.....	.07,8	.07,5	.07,7	.08	.08,1	.08	.08,2	.08
Peru.....	Silver sol.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6

Countries.	Monetary unit.	1900.				1901.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia.....	Silver boliviano.....	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1
Central America.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1
China.....	Amoy tael.....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7
	Chinkiang tael.....	.67,5	.68,8	.69,3	.71,2	.74	.71,2
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5
	Haikwan tael.....	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2
	Hankau tael.....	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2
	Hongkong tael.....	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1
	Niuchwang tael.....	.64,8	.66,1	.66,5	.68,4	.71	.68,4
China.....	Shanghai tael.....	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6
	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4
Colombia.....	Takao tael.....	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4
	Tientsin tael.....	.67	.68,3	.68,7	.70,7	.73,4	.70,7
Ecuador.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1
India.....	do.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1
India.....	Silver rupee†.....	.20,3	.20,7	.20,8	.....	.....	.....
Mexico.....	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49
Persia.....	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3
Peru.....	Silver sol.....	.42,7	.43,6	.43,8	.45,7	.....	.....

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† The sovereign is the standard coin of India, but the rupee is the money of account.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal.....	4.423 gallons.
Ardeb.....	Egypt.....	7.6907 bushels.
Are.....	Metric.....	0.02471 acre.
Arebe.....	Paraguay.....	25 pounds.
Arral or libra.....	Portugal.....	1.011 pounds.
Arroba (dry).....	Argentine Republic.....	25.3175 pounds.
Do.....	Brazil.....	32.38 pounds.
Do.....	Cuba.....	25.3664 pounds.
Do.....	Portugal.....	32.38 pounds.
Do.....	Spain.....	25.36 pounds.
Do.....	Venezuela.....	25.4024 pounds.
Arroba (liquid).....	Cuba, Spain, and Venezuela.....	4.263 gallons.
Arshine.....	Russia.....	28 inches.
Arshine (square).....	Do.....	5.44 square feet.
Artel.....	Morocco.....	1.12 pounds.
Baril.....	Argentine Republic and Mexico.....	30.089 gallons.
Barrel.....	Malta (customs).....	11.4 gallons.
Do.....	Spain (raisins).....	100 pounds.
Berkovets.....	Russia.....	361.12 pounds.
Bongkal.....	India.....	832 grains.
Bouw.....	Sumatra.....	7,096.5 square meters.
Bu.....	Japan.....	0.1 inch.
Butt (wine).....	Spain.....	140 gallons.
Cafiso.....	Malta.....	5.4 gallons.
Candy.....	India (Bombay).....	520 pounds.
Do.....	India (Madras).....	500 pounds.
Cantar.....	Morocco.....	113 pounds.
Do.....	Syria (Damascus).....	575 pounds.
Do.....	Turkey.....	124.7036 pounds.
Cantaro (cantar).....	Malta.....	175 pounds.
Carga.....	Mexico and Salvador.....	300 pounds.
Catty.....	China.....	1.333½ (1⅓) pounds.
Do *.....	Japan.....	1.31 pounds.
Do.....	Java, Siam, and Malacca.....	1.35 pounds.
Do.....	Sumatra.....	2.12 pounds.
Centaro.....	Central America.....	4.2631 gallons.
Centner.....	Bremen and Brunswick.....	117.5 pounds.
Do.....	Darmstadt.....	110.24 pounds.
Do.....	Denmark and Norway.....	110.11 pounds.
Do.....	Nuremberg.....	110.43 pounds.
Do.....	Prussia.....	113.44 pounds.
Do.....	Sweden.....	93.7 pounds.
Do.....	Vienna.....	123.5 pounds.
Do.....	Zollverein.....	110.24 pounds.
Do.....	Double or metric.....	220.46 pounds.
Chih.....	China.....	14 inches.

* More frequently called "kin." Among merchants in the treaty ports it equals 1.33½ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,008 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.0 yards.
Do.....	Paraguay (square).....	8,077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Dessiatine.....	Russia.....	2,667 acres.
Do.....	Spain.....	1,599 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS No. 144.)	
Fanega (dry).....	Central America.....	1,574 bushels.
Do.....	Chile.....	2,575 bushels.
Do.....	Cuba.....	1,579 bushels.
Do.....	Mexico.....	1,547.8 bushels.
Do.....	Morocco.....	Strike fanega, 70 lbs.; full fanega, 113 lbs.
Do.....	Uruguay (double).....	7,779 bushels.
Do.....	Uruguay (single).....	3,888 bushels.
Do.....	Venezuela.....	1,579 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddán.....	Egypt.....	1.03 acres.
Fraíl (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2,500 quarts.
Do.....	Mexico.....	2.5 quarts.
Frasila.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	do.....	2.471 acres.
Hectoliter:		
Dry.....	do.....	2.838 bushels.
Liquid.....	do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1,422 acres.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2,204.6 pounds.
Kilometer.....	do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Koku.....	Japan.....	4,962.9 bushels.
Korree.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	8.28 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	1 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	11 1/2 bushels.
Do.....	Spain (salt).....	4,700 pounds.
League (land).....	Paraguay.....	4,633 acres.
Li.....	China.....	2.115 feet.
Libra (pound).....	Argentine Republic.....	1.0127 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.0165 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.011 pounds.
Do.....	Spain.....	1.0144 pounds.
Do.....	Uruguay.....	1.0113 pounds.
Do.....	Venezuela.....	1.0161 pounds.
Do.....	Metric.....	2,056.7 quarts.
Liter.....		

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Gulana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	1½ acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Mauud.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1403 miles.
Morgen.....	Prussia.....	0.63 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.85418 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands.....	137.9 pounds.
Pie.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.152 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile,* Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5½ pounds.
Sagen.....	Russia.....	7 feet.
Salm.....	Malta.....	490 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	Do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
Tol.....	Do.....	3 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland.....	Do.....	1.36 acres.
Tsubo.....	Japan.....	6 feet square.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

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THE RAILWAYS OF CANADA.

In whatever respect Canada may have fallen behind other countries in the march of progress or in efforts for developing its commercial opportunities, it must be admitted that in providing railway facilities the Dominion has been in the front rank—far ahead, indeed, of some of the oldest of European nations.

On June 30, 1900, there were in Canada 17,824 miles of railway, of which 466 miles had been built in the twelve months covered by the report of the minister lately presented to Parliament. There were also 2,558 miles of sidings. Of the total, 17,694 miles were laid with steel rails and 591 miles were double tracked. The system was owned originally by 154 companies, but by amalgamations and leases the controlling influence is now in the hands of 86 companies and of the Government of Canada, which operates two roads—the Intercolonial and the Prince Edward Island.

There is nothing, perhaps, which better shows the development of the country since confederation than the statistics of the railways. Construction began in 1836, when there were 16 miles of road in operation; and there was no increase till 1847, when 38 miles were added. In 1850, the record stood at 66 miles. In the following decade the Grand Trunk was conceived and built, and, in 1860, 2,065 miles of road were in operation. In the next five years, 175 miles were added. In 1866, the total was 2,278 miles, and at this figure the system remained for three years. In 1870, the mileage was 2,617.

About this time began the "battle of the gauges" and the reign of the subsidy hunter. The main systems were built on a gauge of 5 feet 8 inches. The theory was developed that a narrower and more cheaply constructed road would serve the needs of the country as well as the most costly broad gauge. A system of narrow-gauge roads was planned by a Toronto syndicate, and, after much outpouring of words and printer's ink, the municipalities were got into proper form for voting aid; the Ontario government was persuaded to begin the system of provincial subsidies, which was taken up by the Federal Parliament, and the Toronto and Nipissing and Wellington, Grey, and Bruce roads were begun and built on the narrow-gauge system. Events showed that the narrow-gauge men were not altogether right, while the broad-gauge advocates were partly wrong. In 1872-73, after a period in which its track had three rails and two gauges, the Grand Trunk, on its main system, adopted the standard 4-foot-8½-inch gauge of the continent, and later the narrow-gauge lines were absorbed and widened by the Grand Trunk or the new Canadian Pacific. The discussion had awakened the demand for railway advantages, and, between 1870 and 1880, 4,241 miles were added to the system. The next decade saw the Canadian Pacific syndicate born and the transcontinental line finished, and, in all, 6,293 miles of new railway built. Between 1890 and 1900, 4,506 miles more were built, and the total of 17,657 miles reached.

In the operation of the systems, there are employed 2,282 locomotives, 2,166 passenger and 662 baggage and express cars, 64,979 freight cars, 1,928 cars for conductors and railway service, and 611 snowplows and flangers.

The traffic carried during the year ended June 30, 1900, comprised 21,500,175 passengers (only 7 of whom were killed) and 35,946,183 tons of freight. Passenger trains traveled 20,922,098 miles; freight trains, 24,662,906 miles; and mixed trains, 9,592,867 miles. The earnings of the roads during the year were \$70,740,270, an increase over the year 1899 of \$8,496,486. The working expenses amounted to \$47,699,798, an increase of \$6,993,581, leaving net earnings of \$23,040,472, or \$1,502,804 more than in the year ended June 30, 1899. The returns do not give the number of employees, but the figures of the operating expenses help to show how important the railways are in an industrial sense. The expenses of the railways in 1900 were:

- Maintenance of line and buildings, \$10,259,093; for the working and repairs of engines, \$15,097,108; for like service with cars, \$4,501,239; for general operating expenses, \$17,842,356; the total being \$47,699,798—nearly all going in wages or for material in the production of which wages were the greatest element.

The investment of capital in roads and equipment is put at

\$998,268,404, or, roughly, \$54,000 a mile. The division into stock, bonds, and subsidies is thus given:

Share capital paid.....	\$279,368,000
Preferred shares paid.....	130,957,000
Bonds.....	373,716,000
Dominion subsidies.....	157,565,000
Provincial subsidies.....	31,310,000
Municipal bonuses.....	15,884,000
From other sources.....	7,465,000

These figures, particularly those as regards ordinary-share capital, are not always evidence of investment. There are roads whose owners contributed little or none of their own money to creating the works they control; there are even roads or sections of roads the building of which has put money into, instead of taking it out of, the owners' pockets. There are others whose stock was issued either to the public or the inner circle of promoters at figures very much under its face value. Probably, from 25 to 50 per cent would represent the expansion of share capital in this manner. The public aid, amounting to over \$200,000,000, was a very real contribution, however—it is a main cause of the heavy debt which both the Dominion and Provinces have to carry.

The following is a synopsis of a very comprehensive table published by the Department of Railways, in which the details of one hundred and sixty-nine railways are given, relating to the sources from which their capital was derived. The railways are divisible into several groups, as follows:

Government railways:	Miles.
Intercolonial.....	1,332
Prince Edward Island.....	210
Grand Trunk Railway:	
Main line.....	884
Branch lines.....	2,270
Canadian Pacific Railway:	
Main line.....	3,628
Branch lines.....	3,244
Other railways.....	6,256
Total length of Canadian railways.....	17,824

The following gives a synoptical view of the capital engaged in the railways of Canada:

Grand Trunk Railway:	
Main line—	Capital paid up.
Ordinary-share capital.....	\$109,356,584
Reference capital.....	89,244,198
Bonded-debt capital.....	86,141,717
Loan from Government.....	15,142,634
Total capital of main line.....	299,885,133

Grand Trunk Railway—Continued.

Branches—	Capital paid up.
Ordinary-share capital.....	\$300,000
Preference capital.....	2,555,657
Bonded-debt capital.....	31,617,807
Aid from Dominion Government.....	1,934,832
Aid from provincial government.....	3,000,406
Aid from municipalities.....	5,745,725
Total capital of branches.....	45,154,427
Total capital of Grand Trunk system.....	345,039,560

Canadian Pacific Railway:

Main line—	
Ordinary-share capital.....	65,000,000
Preference capital.....	29,321,666
Bonded-debt capital.....	111,985,715
Aid from Dominion Government.....	25,240,000
Aid from provincial government.....	334,657
Aid from municipalities.....	572,500
Total capital of main line.....	232,454,538
Branches—	
Ordinary-share capital.....	14,230,916
Preference capital.....	2,984,476
Bonded-debt capital.....	50,326,718
Aid from Dominion Government.....	8,665,789
Aid from Dominion Government (Crow's Nest Pass).....	3,630,000
Aid from provincial government.....	11,788,997
Aid from municipalities.....	4,113,444
Aid from other sources.....	724,294
Total capital of branches.....	96,464,634
Total capital of Canadian Pacific Railway system.....	328,919,172

Total share capital of all railways paid up.....	410,326,094
Total bonded debt of all railways issued.....	394,062,462
Total bonded debt of all railways sold.....	373,716,703
Total Dominion Government aid to railways.....	159,565,770
Total provincial government aid to railways.....	31,310,170
Total municipal aid to railways.....	15,884,542
Total capital from other sources.....	7,465,123
Total capital of the Government railways.....	63,849,840
Grand total of railway capital paid up.....	998,264,404

In regard to railway subsidies, the department report says:

The Federal Government expenditure on railways prior to and since the date of confederation (July 1, 1867) amounts, on capital account, to \$127,636,988.07 (including \$25,000,000 granted to the Canadian Pacific Railway Company), which, together with \$296,872.90 expended on the Nova Scotia Railway and the European and North American Railway and transferred to the consolidated fund, and for railway subsidies charged against the consolidated fund the further sum of \$23,227,562.51, makes a total expenditure of \$151,161,423.48. In addition, there has been an expenditure since confederation for working expenses of \$81,391,472.11, covering the

maintenance and operation of the Government roads, or a grand total of \$232,552,-895.59, all of which, with the exception of \$13,881,460.65, paid out before confederation, has been expended on railways during the past thirty-three years. The revenue derived from the Government roads during the same period amount to \$73,225,382.16.

The continued expansion of the subsidy system is awakening alarm among the taxpayers of the country. The population of Canada is hardly over 5,500,000, and the debt, almost solely created by the granting of Government subsidies in aid of public improvements, is becoming a very heavy burden to carry.

There are about 1,000 miles of new railway now under construction, mostly through wild and unsettled territory.

The result of the survey for a Canadian railway to the Yukon has so far progressed that the chief engineer is able to say that a practicable line can be obtained, on which a road could be constructed at reasonable cost.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *March 16, 1901.*

THE WATER WAYS OF CANADA.

Canada in earlier days was styled "a wooden country," because of her vast forest areas, but the same term might as truthfully have been applied to the United States a century ago. One feature of Canada which might be used in a national descriptive title is her water ways, which are unrivaled in length as also in service to commerce.

RIVERS AND LAKES.

From the point where the waters of Canada mingle with those of the Atlantic to a Canadian port at the head of Lake Superior, along the entire course of which a vessel may sail in Canadian waters, the distance is 2,260 statute miles.

From the Straits of Belle Isle to Montreal, the St. Lawrence River extends 986 miles, with a channel wide enough and deep enough for ocean steamers.

From Lake Superior to Three Rivers, on the St. Lawrence, where tidal influence ceases, a few hours' sail from Montreal, there is a drop in level to the extent of 600 feet; that is, a vessel from Montreal on its voyage to Port Arthur has to ascend 600 feet. To attain this height, there is a system of locks in operation, by means of which vessels are lifted 551 feet, leaving 49 feet to be overcome

by working against a downward stream, which at one place near Iroquois often necessitates the employment of a tug to help a steamer up the river.

CANALS.

Between Montreal and Kingston, the canals, with their length, lock dimensions, and height of lift, are as follows:

Canals.	Length.	Length of locks.	Lift of locks.
	<i>Miles.</i>	<i>Feet.</i>	<i>Feet.</i>
Lachine	8½	270	45
Soulanges	14	280	84
Cornwall	11	270	48
Farran's Point	1	800	3½
Rapide Plat	3½	270	11½
Galops	7½	800	15½
Murray	5½	270	15½
		No locks.	.....

The width of the locks is 45 feet and depth of water on the sills 14 feet. On their course down from Kingston to Montreal, several of the canals are not used, as the rapids are run with safety. From Kingston, the course west is through Lake Ontario until Port Dalhousie is reached, where the Welland Canal is entered. This splendid construction extends $26\frac{3}{4}$ miles; the total lift is $326\frac{3}{4}$ feet, which is effected by twenty-seven locks, each 270 feet by 45 feet, with a depth of 14 feet. From the end of the Welland Canal—Port Colborne—there is deep water to Sault Canal, 394 miles. The Sault Ste. Marie Canal extends 5,967 feet; it has only one lock, which is 900 feet by 60 feet, and lowest depth 20 feet 3 inches, the total rise being 18 feet. Another water course runs from Montreal to Ottawa and turns down to Kingston, a total distance of 245 miles. The rivers Ottawa and Rideau are part of this water way. The canals on this route are: Lachine, $8\frac{1}{2}$ miles; St. Anne's lock and piers, one-eighth of a mile; Carillon Canal, three-fourths of a mile; Grenville, $5\frac{3}{4}$ miles. From Ottawa to Kingston— $126\frac{1}{4}$ miles—there are thirty-five locks. Besides these main-line canals, there are others on the line of the Richelieu River; in Ontario, through the Peterborough district; in Cape Breton; and a number of branches acting as feeders to the Rideau and Welland systems.

CANAL TRAFFIC.

The total quantity of freight passed through the several divisions of the canals during 1899 was as follows:

Canals.	Farm products, etc.	Merchandise.	Total.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Welland.....	566,022	223,648	789,770
St. Lawrence.....	894,755	454,338	2,349,093
Chambly.....	236,305	126,330	362,635
Ottawa.....	513,778	6,327	520,105
Rideau.....	41,568	28,337	69,905
St. Peters.....	20,105	50,699	70,804
Murray.....	4,994	11,794	16,788
Trent Valley.....	38,877	1,283	40,160

The Chicago Trade Report for 1899 gives 19,396,518 as the total number of bushels of grain shipped from that city for transit through Canada in 1899. The value of the exports from Chicago to Canada by water in 1899 was \$5,319,197. The total quantity of through freights passed eastward and westward through the Welland and St. Lawrence canals from Lake Erie to Montreal in the last ten years was as follows:

Year.	Eastward.	Westward.	Percentage of west to east.
	<i>Tons.</i>	<i>Tons.</i>	
1899.....	354,953	5,998	1.7
1898.....	538,108	4,436	0.83
1897.....	584,246	4,502	0.77
1896.....	480,077	10,050	2.08
1895.....	266,659	10,555	4
1894.....	292,191	9,439	3.23
1893.....	508,016	16,545	3.25
1892.....	563,144	9,452	3.6
1891.....	300,593	14,060	4.5
1890.....	231,746	13,951	6

The disparity between the volume of freight carried eastward from Lake Erie to Montreal and that taken on the westward trip is very striking, the average ratio of the westward freight to the eastward for the ten years 1890-1899 having been only 2.58 per cent.

The freight carried up and down the Welland Canal in 1899 was as follows:

Vessels.	Eastward.	Westward.
	<i>Tons.</i>	<i>Tons.</i>
In Canadian vessels.....	297,084	12,462
In United States vessels.....	325,020	135,052
Total.....	622,104	147,514

The advantage of American vessels in the carrying trade from Lake Erie to this port is marked; they had return cargoes westward equal to 41 per cent of those brought eastward, whereas the

Canadian vessels had westward return cargoes to the extent of only 4.19 per cent—just about one-tenth of the American.

From a statistical report of lake commerce passing through the canals at Sault Ste. Marie, Michigan and Ontario, during the season of 1900, received by the passenger department of the Canadian Pacific Railway, the following interesting general summary is gleaned:

Total freight carried..... net tons...	25,643,073
Total valuation placed on freight carried.....	\$267,041,959
Average value per ton of freight carried.....	\$10.41
Total amount paid for freight transportation.....	\$24,953,315
Average distance freight was carried.....miles...	825.9
Average cost per ton for freight transportation.....	\$0.97
Total number registered vessels using canals.....	879
Total number of passages by unregistered craft carrying freight..	454
Time American lock was operated.....days...	238
Time Canadian lock was operated.....do.....	238
Total valuation placed on registered vessels.....	\$69,735,159
Total number of passengers transported.....	58,555
Freight carried by registered vessels.....tons...	25,585,934
Unregistered vessels.....do.....	57,139
American vessels.....per cent...	97
Canadian vessels.....do.....	3
Passengers carried by American vessels.....do.....	42
Passengers carried by Canadian vessels.....do.....	58

According to the report of the Minister of Railways and Canals, which has just been submitted to Parliament, the total traffic through the several canals of the Dominion for the season of 1899 amounted to 6,225,924 tons, a decrease of 392,551 tons compared with the previous year. This includes 3,006,664 tons passing through the Sault Ste. Marie Canal, which is free of toll.

Of through freight through the Welland Canal, Canadian vessels carried 309,546 tons, a decrease of 740 tons; and United States vessels 460,072 tons, a decrease of 350,372 tons.

The quantity of grain passed down the Welland and St. Lawrence canals to Montreal was 332,746 tons, a decrease of 186,786 tons compared with the previous year. Of this, 48,828 tons were transhipped at Ogdensburg, as against 40,357 the previous year. The further quantity of 39,545 tons of grain passed down the St. Lawrence canals only to Montreal, making a total of 372,291 tons.

The rate of toll on grain through the Welland, giving free passage through the St. Lawrence canals, was 10 cents a ton.

On the St. Lawrence canals, 1,349,993 tons of freight were moved, being a decrease of 90,041 tons. Of these, 609,454 tons were east-bound through freight and 29,810 tons were west-bound through freight; 811,616 tons were agricultural products, 380,127 tons were merchandise, and 81,951 tons forest products.

CANAL VS. RAILWAY TRAFFIC.

As having an interesting bearing on the question of canal vs. railway transport of grain from the west, it may be noted that whereas grain and pease passed down to Montreal through the Welland and St. Lawrence canals to the extent of 332,746 tons, a decrease of 186,786 tons from the previous year, the quantity carried to Montreal via the Canadian Pacific and Grand Trunk railways amounted to 209,170 tons, a decrease of 84,221 tons. In addition, during the past two seasons, a new system of grain traffic has come into operation from Depot Harbor, on Georgian Bay, Lake Huron, over the line of the Canada Atlantic Railway, to Coteau Landing, at the head of the Soulanges Canal; thence by barge to Montreal. In the season of 1898, the total freight carried by this route to Montreal was 263,735 tons, of which 226,406 tons were grain. In the season of 1899, 309,573 tons were carried, of which 259,531 tons were grain, going through the Beauharnois Canal, the Soulanges not then being opened. Of the grain so carried in 1898, 59,063 tons were wheat and 149,169 tons corn; in 1899, 66,635 tons were wheat and 174,932 tons corn.

ENLARGED CANAL FACILITIES.

In concluding his report, the Minister of Railways and Canals says:

On the opening of navigation in the spring of 1900, by means of the enlarged canal system and the intermediate water ways (though not fully completed), passage to vessels drawing 14 feet of water from Lake Superior to the head of ocean navigation at Montreal was afforded. The extent of the improved facilities of communication so obtained and their value to commercial interests may be understood from the fact that in place of the old limit of lock dimensions—viz, length, 200 feet; width, 45 feet; depth of water on the sills, 9 feet—the enlarged locks are 270 feet in length, 45 feet in width, with 14 feet of water on sills, accommodating vessels 255 feet long and 44 feet wide. As an index to the carrying power of the new canal works, it may be observed that a typical vessel—the propeller *Aragon*, whose length is 247 feet and width 42.6 feet—has passed through the enlarged Welland Canal, drawing 14 feet of water and carrying 2,212 tons of corn. The through route between Montreal and Port Arthur, at the head of Lake Superior, now open for 14-foot navigation, comprises 73 miles of canal and 965 miles of river and lake waters, or a total of 1,038 miles. To Duluth, the total distance is 1,162 miles.

The approaches to the canals and the channel through the intermediate river reaches are well defined and are lighted with gas buoys, rendering their navigation by night as well as by day feasible and safe. In the case of the Soulanges Canal, the canal is well lighted throughout by electricity, a system which will be extended to other canals before long. With the more intimate knowledge of the new channel through the St. Lawrence now possessed by the river pilots, full advantage will no doubt be taken of the improved facilities afforded by the enlargement works; and this great water highway from the west will realize the aims of its projectors and constructors in giving rise to the establishment of lines of deep-draft vessels on the

route, with the beneficial result of a vast impetus to the trade and commerce of the country. Already, indications of movement on all sides promise the early and rapid development of the new era of progress, not only in the direction of the production and transport of crude materials, ores, grain, coal, and lumber, but in the enormous expansion of manufactures and industries on the shores of the Great Lakes and their connecting rivers, notably the iron and steel and shipbuilding industries, to all of which the ability to employ vessels carrying 3,000 tons of freight direct to the seaboard and Europe, which Canada has now afforded, must inevitably prove a great stimulant. The growth of the main centers of production and collection on the lakes, as shown by the last United States census of 1900, is sufficient indication of the prodigious vitality of the region. Since 1890, Buffalo has increased 37 per cent, to a population of 352,000; Cleveland, the great shipbuilding center, 46 per cent, to 382,000; Toledo, 61 per cent, to 132,000; Detroit, 38 per cent, to 286,000; Milwaukee, 39 per cent, to 285,000; and Chicago, 54 per cent, to 1,699,000.

To this has to be added the fact that during the fiscal year ended on June 30, 1899, vessels were built on the Great Lakes to the extent of a total gross tonnage of 183,317, of which 139,765 tons were steam vessels. In the previous year, this total amounted to 190,743 tons, and the total for the past eleven years—1889 to 1899, inclusive—to 816,297 tons.

Though naturally not marked in equal degree, the tendency to a similar industrial development on the Canadian side is very evident, especially at the Sault Ste. Marie, where, in addition to the existing important pulp and paper mills, the establishment of large iron and steel works is in progress. At Collingwood, also, and Kingston like works are projected, while at Depot Harbor, on Georgian Bay, a system of wharfs and elevators has been constructed for the accommodation of the grain trade. The very extensive harbor-improvement works at Montreal will naturally tend to attract traffic down the canals to that port. The improvements at Port Colborne, the Lake Erie entrance of the Welland Canal, are in progress. They comprise the deepening of the approaches to the canal to 22 feet and the construction of two docks, with piers 200 feet wide, upon which grain elevators will be erected to transfer grain to the 14-foot-draft canal boats when required. The deepening of the approaches to the Sault Ste. Marie Canal, at present limited to accommodating vessels of 17 feet 6 inches draft, so as to give a depth of 22 feet, thus enabling the canal works to be utilized to their full extent (which is the same as the American canal on the other side of the river), will probably be carried out next year.

CANAL REVENUE AND EXPENDITURE.

The revenue from all the canals has been as follows:

Year.	Revenue.	Increase.	Decrease.
1899.....	\$291,652	.....	\$50,027
1898.....	341,679	.....	5,079
1897.....	346,759	.....	3,302
1896.....	350,061	\$66,850	.....
1895.....	283,211	.....	24,613
1894.....	307,825	.....	40,187
1893.....	348,012	.....	10,600
1892.....	358,711	8,359	.....
1891.....	350,352	2,292	.....
1890.....	338,050	.....	33,049

The decreases in canal revenue in 1899 were: Welland, \$50,605; St. Lawrence, \$6,111; Ottawa, \$1,545—making together \$58,261. Against this there were increases: Chambly, \$6,674; other canals, \$1,561—making a total of \$8,235. Taking the total increase from the gross amount of decrease leaves \$50,026 as the decline in canal revenue in 1899 as compared with 1898.

The total expenditure charged to capital account on the original construction and the enlargement of the several canals of the Dominion up to June 30, 1900, was \$79,043,784.09. A further sum of \$16,273,125.98 was expended on the repairs, maintenance, and operation of these works, making a total of \$95,316,910.07. The total revenue derived, including tolls and rentals of lands and water powers, amounted to \$12,401,917.32.

The total expenditure for the fiscal year ended June 30, 1900, was: On construction and enlargement, \$2,639,564.93, and a further sum of \$711,600.06 for repairs, renewals, and operation, making a total for the year of \$3,351,164.99. The total net revenue collected for the fiscal year was \$322,642.86, a decrease compared with the net revenue of the previous year of \$46,401.52.

It is evident that if the value of facilities for transport were measured by the relation the net revenue received from canals bears to the outlay, the Canadian canal system would be found wanting. The Canadians do not take so narrow a view. They recognize that water ways and roadways are essential to the commercial life of a country

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *March 21, 1901.*

IRON AND STEEL BOUNTIES IN CANADA.

The iron and steel bounties offered by the Dominion of Canada have grown to such proportions as to create much discussion, and there is a growing disposition to demand from Parliament a repeal of the law granting them.

In 1898-99, the iron bounties reached \$280,109. Last year, according to the auditor-general's report, the Dominion gave \$312,774 as bounties on iron and steel, the distribution being as follows:

Radnor Forges, Three Rivers.....	\$18, 234
Deseronto Iron Company.....	27, 026
Hamilton Blast Company.....	107, 009
John McDougall & Co.....	5, 485
Nova Scotia Steel Company.....	137, 522
Mineral Products Company.....	7, 378
Ontario Rolling Mills.....	1, 200
Hamilton Steel and Iron Company.....	8, 920
Total bounties paid.....	312, 774

The bounty paid is \$3 a ton on pig iron from Canadian ore and \$2 on pig iron from foreign ore, \$3 a ton on puddled bar from pig iron made in Canada, and \$3 a ton for steel ingots made from Canadian pig iron.

The Dominion Iron and Steel Company, Limited, of Sydney, Cape Breton, Nova Scotia, in its offer of sale of \$3,000,000 of 7 per cent preferred stock, sets forth an estimate of the Government bounty which will be received by that company for seven years. The company states that "if the production from the company's works be as estimated—300,000 tons of pig metal and 60,000 tons of steel blooms in 1901, and thereafter 400,000 tons of iron and steel per annum, made from foreign (Newfoundland) ore—the bounties to be received from the Canadian Government" will be as follows:

1901.....	\$870,000
1902.....	2,075,000
1903.....	1,850,000
1904.....	1,450,000
1905.....	1,000,000
1906.....	625,000
1907.....	225,000
Total.....	8,095,000

The Cramp Ontario Steel Company, with a capital of \$5,000,000, is a new enterprise located at Collingwood, Ontario. The bounties granted to such enterprises in the Province of Ontario by the Province and Dominion combined amount to \$7 per ton of the product.

So many iron and steel plants are being started in the Dominion that it is feared that the bounties offered will shortly become a greater burden than the country can stand.

In all the iron and steel plants now in operation, as well as in those projected, United States capital is dominant.

It is very clear that with so large a bounty, abundant raw material, and cheaper labor than in the United States, the iron and steel plants of Canada will have a considerable advantage over the plants in our country.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *March 15, 1901.*

FREE HOMESTEADS IN CANADA.

It is officially announced by the Dominion Government that a block of 60,000 acres of free-grant lands in the Rainy River district of Ontario (in the eastern part of this consular district) has been surveyed and is open to settlement under the "homestead laws" of Canada. However, the general homestead act is somewhat modified as applied to this particular block of lands. Of these lands, any

male head of a family or sole female head having a child or children under 18 years of age may locate 160 acres free, and may also purchase an additional 80 acres at \$1 per acre. The homesteader must clear and cultivate at least 15 acres, and in no one year less than 2 acres, during three years; must build a habitable house at least 16 by 20 feet in size; and must continuously reside on the land for three years after location. If the 80 acres additional is purchased, at least 15 acres of it must be put under cultivation within three years. Patents may issue at the expiration of three years from date of purchase, or sooner if settlement duties have been performed. Minerals and pine timber are reserved to the Government, but the homesteader may use such pine trees as may be needed for building, fencing, and fuel, and may sell such pine trees as may be necessarily removed in the process of clearing, but must pay timber dues on all pine timber sold. All timber remaining on the land when patents issue passes to the patentee. These lands are very fertile and covered by a dense forest, generally of valuable timber. The Ontario and Rainy River Railroad, now nearing completion, runs through this block of land and brings it within easy reach of markets. This railroad is a link in the Canadian Northern system, which, within the next six or eight months, will have a continuous line from Port Arthur, on Lake Superior, to Winnipeg and thence 300 miles northwest.

W. H. H. GRAHAM,
Consul.

WINNIPEG, *March 29, 1901.*

NURSERY STOCK IN MANITOBA AND BRITISH COLUMBIA.

An order in council has recently been passed by the Dominion Government of Canada, modifying the operations of the "San José scale act," which act has heretofore practically prohibited the importation from the United States of all kinds of nursery stock.

The order in council, as enacted, authorizes exemption from the San José act of any trees, shrubs, plants, vines, grafts, cuttings, or buds, commonly known as nursery stock, from any country to which said act applies, and all importations thereof are permitted to be entered at the customs port of Winnipeg between March 15 and May 15 and between October 7 and December 7; and at the customs port of Vancouver, British Columbia, from October 15 to March 15. Government officials are designated at each of said ports to thoroughly fumigate with hydrocyanic-acid gas all importations of nursery stock that may be entered, but the Government assumes no risk

or responsibility for loss or damage by reason of such fumigation. Entries are not permitted at other ports than those named above.

The general tariff laws of the Dominion impose a duty of 3 cents on each budded or improved fruit or shade tree, and an ad valorem duty of 20 per cent on shrubbery imported from the United States; but seedling stock for grafting and florists' stock in general are admitted free of duty.

There is a large and growing demand for nursery stock in Manitoba and the Northwest Territories, and the supply, notwithstanding the tariff, should come largely from the United States, as trees and shrubs propagated in the Northwestern States are better adapted to this climate than those produced elsewhere.

W. H. H. GRAHAM,

WINNIPEG, *March 23, 1901.*

Consul.

VICTORIA RAILWAY AND STEAMBOAT CONNECTIONS.

The granting of a subsidy of \$15,000 per annum for twenty years to a syndicate which proposes to construct a railway and ferry to connect Victoria with the Fraser River Valley and the Great Northern Railway has resulted in a marked improvement in the existing transportation facilities, although no active steps have yet been taken on the proposed route.

For the first time, Canadian Pacific Railway cars were seen in the yards of the Esquimalt and Nanaimo Railway in this city; and it is said that a contract has been made between the two roads, to date from March 1, 1901, by which cars containing freight for Victoria arriving at Vancouver via the Canadian Pacific Railway will be loaded, without breaking bulk, on a large barge ferry, taken to Ladysmith, the new town 60 miles north of Victoria on the east shore of Vancouver Island, placed on the Esquimalt and Nanaimo Railway line, and brought to Victoria the same day. The sheds at Ladysmith have just been enlarged, and the freight warehouse and sheds at the Victoria depot have also been greatly added to, to enable the goods to be stored and taken care of.

Another event has been the purchase by the Canadian Pacific Railway of the majority of the stock of the Canadian Pacific Navigation Company, a local concern that has long controlled the steamers running from Victoria to all northern ports. This company has two good passenger steamers, which have been kept on the Vancouver route and constituted the daily ferry between the two largest cities of British Columbia. It also owns and runs a number of other

steamers, built primarily as freighters, which have carried passengers as well as merchandise to and from the Fraser River canneries, the west coast of Vancouver Island, and the extreme northern ports of British Columbia and Skagway. While these are good, serviceable steamers, they are not well adapted for passengers, and the result has been that persons desiring to go north have taken a ferry-boat to Seattle and there secured accommodations on the numerous first-class passenger steamers which sail regularly from that city to Skagway, none of which, except the mail steamer *Cottage City*, touch at this port. The new management assumed charge the 1st of the present month, and announces that on May 1 it will put on two first-class passenger steamers between Victoria and Skagway, to leave every five days; also, that the service on the west coast and Fraser River will be improved. It is stated that two fast American steamers have been purchased, one of which will be put on the Vancouver route, making the daily run to Victoria in four hours.

In this connection, it may be noted that for the past six months there have been two daily steamers running between Victoria and Seattle, and it is said another will be put on the early part of next month. The low fares have resulted in a large increase of travel. The average number of passengers carried per day has exceeded one hundred each way.

ABRAHAM E. SMITH,
Consul.

VICTORIA, *March 18, 1900.*

IMPROVEMENT IN BRAZILIAN CABLE SERVICE.

Improvements of an important character, materially affecting the facility and cost of cable communication between Brazil and the United States, have been made by the Western Brazilian Cable Company. As a result of the new line opened by the Commercial Cable Company from New York to the Azores Islands, connecting with the line from Brazil via Lisbon, messages can now be sent without the delays incident to the crush of business in the London offices, which formerly had to handle all the Brazil communications. The managers of the large coffee houses here, who use the service constantly in their business, say that the new lines have proved very beneficial. In addition to the increased facilities, an advantage has been gained in the cost of transmission. The rates have been reduced on an average 25 per cent. Formerly, the charge per word from Rio de Janeiro to New York was nearly \$1.30; now, it is about \$1. The average time for a word in transmission between the two places is from eighteen to twenty-five minutes. Messages

have come through in twelve minutes. The company sends all messages by Lisbon and the Commercial Cable Company's line, unless another route is specified by the sender.

The consolidated company operating here under the name of the "Western Cable Company" is a union of the Western Brazilian and the Brazilian Submarine. It has three cables from Pernambuco to Rio de Janeiro, two from Pernambuco to Para, two from Pernambuco to London, and one from Pernambuco to Lisbon. Connections are made with all the important ports from Para to Montevideo. The charges per word are based on the average rate of exchange for every three months, as determined by the Brazilian Government. At present it is 900 reis to the franc (19.3 cents), and if exchange remains above 11d.,* it will soon be considerably less.

The following rates may be of interest:

Canada, New York City, Boston, Baltimore, Philadelphia, Wash- ington, Chicago, and New Orleans.....	Milreis. 4. 68= \$1. 00
Barbados.....	8. 91= 1. 91
St. Thomas.....	9. 18= 1. 96
Habana.....	5. 45= 1. 16
Trinidad.....	9. 27= 1. 98

EUGENE SEEGER,

RIO DE JANEIRO, *March 9, 1901.*

Consul-General.

CORAL AND PEARL FISHERIES OF COLOMBIA.

The following notice, dated Panama, February 20, 1901, appeared in a local paper of recent date and is an official announcement by the Panama Government of the intended sale of the rights of the fisheries at the Pearl Islands:

The Government will shortly accept bids for the right to work the pearl and coral fisheries in Colombian waters for a term of fifteen years. To intending bidders for the said right, full particulars will be furnished at the Government House.

For something like a hundred years and more, the small group of islands 50 miles to the south of Panama, known as the "Pearl Islands," have been famous for their remarkable yield of pearls and coral. During certain seasons of the year, when the waters are unusually clear, these waters are worked by divers, and many pearls of great value have been found there. The pearls rank well in grade and color; in the latter respect, they range from the pure white to green and lead gray and frequently jet black.

These fishing grounds have been a source of great revenue to the Government, as well as to the few more fortunate finders. Some

* 11d. (22 cents) to the milreis, which equals 1,000 reis.

little expense is attached to the business, as it is necessary to have experienced divers and men thoroughly versed in the business.

It is estimated that the shell of the oyster, commonly known as the mother-of-pearl shell, if trimmed and shipped to Europe or the United States, would be sufficient to defray all ordinary expenses and leave the find of pearl as a clear profit. It is not common to have valuable finds, yet the fisher is sometimes rewarded with pearls of great worth. Some two years ago, a small boy, while diving in the shallow water more for sport than work, found a pearl which he sold to a local dealer for \$4,000 silver (\$1,760). This dealer delivered the same pearl to a buyer in Panama and received \$10,000 silver (\$4,400) for it. This pearl is now in Paris and an offer of \$6,000 gold has been made therefor and refused.

Formerly, those who worked in these waters paid a percentage on their finds; later, an annual tax. It seems that now the Government has decided to sell the exclusive right to the highest bidder for a period of fifteen years.

PANAMA, *March 11, 1901.*

H. A. GUDGER,
Consul-General.

FINANCES OF HAITI.

I transmit herewith an official statement just issued by the National Bank of Haiti. This bank is the fiscal agent of the Government and stands in the same relation to it as the Treasury Department does to our Government. All the Government money is deposited therein, and all disbursements are made therefrom.

There are several features of this report that arrest one's attention, as it shows the financial condition of the country at the present time and the disbursements that have been made by the Government during the past year. For the first time in many years, the Government has not had to resort to a loan to meet its current expenses either here or abroad, but has managed to bring its expenses within its resources.

The national debt of Haiti, foreign and domestic, according to the statement made by the bank in its report, is \$27,000,000 gold. Last year, from the statement published, the debt was \$19,076,732 gold and 9.372,183.34 gourdes. The latter, reduced to its equivalent in gold at the ruling rate of exchange, would make the total debt at last report \$27,901,673 gold; showing a reduction from the present figures of \$901,673 gold. This reduction has been brought about largely by the Government changing the floating debt, which was largely in Haitian currency, to a gold basis, and issuing a

new series of bonds to cover this debt, in which both principal and interest were payable in gold. This conversion has been of great benefit to foreign holders and has caused a slight loss to the Government. Owing to the high rate of exchange, the foreign holders were subject to a considerable loss in converting this currency into gold. During the year, the interest on both the foreign and interior debt has been regularly met, and I think that it can be said the financial condition of Haiti, in regard to its national debt, is more satisfactory than it has been for a long period.

The paper currency is being reduced by the Government withdrawing it gradually and not placing new notes in circulation, the intention being to bring the circulating medium to a gold standard.

The present monetary circulation is as follows:

Paper currency of the denomination of 1 and 2 gourdes.....	\$3, 469, 390
Silver.....	2, 500, 000
Bronze (1 and 2 cents).....	225, 000
Gold (American).....	1, 250, 000
Total amount in circulation.....	7, 444, 390

Estimating the population (as given by the pastors of the several churches and published in the Religious Bulletin) at 1,280,000 persons above the age of 4 years, there is in circulation only \$5.81 per person. There is but one year on record which shows a smaller circulation; in 1899, it was \$5.53½. The largest amount in circulation was in 1895, when it was \$10.66 per capita.

Another feature of this report worthy of attention is that the rate of exchange for francs in 1899 was 180 per cent and for American gold 172¼ per cent. The mean rate for this year for francs was 116¼ per cent and for American gold 112¼ per cent.

Receipts have been:

Revenue receipts from customs, exports:		Gold.
1900.....		\$3, 332, 300. 32
1899.....		2, 811, 847. 05
Revenue received over preceding year.....		420, 453. 38
Revenue receipts from customs, imports:		Gourdes.
1900.....		4, 448, 805. 51
1899.....		2, 666, 559. 40
Revenue received over preceding year.....		1, 782, 246. 11

All export duties are paid in gold; imports, in the currency of the country.

Comparing this statement of export revenue received with that of the ten preceding years, it will be seen that the present exceeds any within this period, the nearest approach to it being that of the year 1890, when the export receipts were \$3,306,447.90

The revenue derived from imports has been exceeded three times within this period—

1890.....	\$5, 694, 273. 66
1891.....	5, 063, 544. 51
1892.....	4, 526, 619. 94

The expenditures of the Government for the present year show a decrease from those of the past or preceding years, as follows:

	Gourdes.
1900.....	4, 200, 264. 40
1899.....	4, 499, 067. 14
Net saving for the year.....	298, 802. 74
	Gold.
1900.....	\$2, 536, 224. 76
1899.....	2, 913, 593. 28
Net saving for the year.....	377, 368. 52

During the past year, the exportation of the four leading products of the Republic was as follows:

Article.	1900.	1899.	Increase.
	Pounds.	Pounds.	Pounds.
Coffee.....	72, 122, 781	61, 622, 184	10, 500, 597
Cacao.....	4, 224, 691	4, 039, 500	185, 191
Logwood (not including logwood roots).....	106, 066, 469	82, 836, 302	2, 323, 017
Cotton.....	2, 050, 128	1, 471, 992	578, 136

It can be seen from this statement that the Republic is gradually reducing its national debt; that the revenue receipts have largely increased during the past year; that the expenses of the Government have been less and the rate of the exchange has been lower than for many previous years; and that the yield of the leading exports, as coffee, cacao, logwood, and cotton, has greatly increased, consequently the exportations of these products have been larger. This report shows a more prosperous condition than the country has experienced for a period of many years.

W. F. POWELL,

PORT AU PRINCE, *March 18, 1901.*

Minister.

SINKING PETROLEUM WELLS IN MEXICO.

For many years, it has been believed by experts that petroleum existed in Mexico, especially along the Gulf coast, and several parties in years past have drilled in this vicinity (Tampico) in the hope of finding it; but no really determined effort has been made until quite recently, and owners of land are awaiting the results of that effort with much anxiety.

The chief indication of the existence of oil here is the numerous wells of asphalt.

Eastern oil men have passed by this territory, as the surface indications were not good, according to their experience in the eastern fields, and also on the result of the above-mentioned experiments; so it remained for California parties, flushed with success from their oil investments in that State, to detect the possibilities here from the similarity in the surface indications between California and this part of Mexico. They have emphasized their belief by purchasing large tracts of lands, building houses, and ordering machinery, preparatory to sinking experimental wells. Other interests have also secured favorable leases.

In addition to the foregoing preparations in the vicinity of Tampico, there is an English company operating south of here in the State of Vera Cruz, the results of which are as yet not known.

It is the general opinion that if oil is found in paying quantities it will be similar to the California product—unprofitable to refine, but good for fuel.

As coal is expensive here and wood is becoming scarcer each year, fuel oil will find a ready market, even if found in large quantities.

SAML. E. MAGILL,
Consul.

TAMPICO, *March 18, 1901.*

NEW EUROPEAN-MEXICAN STEAMSHIP SERVICE.*

Consul-General Lincoln reports from Antwerp, March 7, 1901:

The organization of a new steamship line between Antwerp, Havre, Habana, Mexican ports, and New Orleans is announced in the press as having been effected by the company Les Affreteurs Réunis, of Paris and Havre.

* A report has been received from Consul Thackara, of Havre, embodying the same information.

At the commencement it will be a monthly service, carried on by the Spanish steamships of the Compagnie de Navigation Olazarri, of Bilbao.

The sailings from Antwerp will be on the 30th of each month and from Havre on the 5th of the month following. The first departure from Antwerp will take place on the 30th of March, the sailing from Havre on the 5th of April, due to arrive at New Orleans on the 15th of May.

Returning, the first sailing from New Orleans is announced for the 1st of June, arriving at Havre on the 20th of the same month.

The steamship *Olanes*, 4,800 tonnage, will be the first to sail, followed by the *Onton*, 3,800 tons; *Ogono*, 3,650 tons; *Orinon*, 3,800 tons; *Olazarri*, 3,700 tons; *Ollargon*, 3,300 tons; *Otoyo*, 5,800 tons; *Ontaneda*, 5,700 tons; and the *Oleta*, 5,700 tons.

EXHIBITION IN THE AZORES.

I am in receipt of an official letter notifying me that it is the intention of the authorities of this island to inaugurate a grand fair, or exhibition, in honor of the first visit of the King and Queen of Portugal to the Azores. The official programme puts the date of their appearance in St. Michael's at July 1, 1901, and it is intended that the King will open the fair in person. It will last three weeks.

Undoubtedly, this will attract a large number of people from the other islands, and it seems to me that it would be an excellent opportunity to exhibit some of the many things for which we are celebrated.

Unfortunately, the plans of the fair association do not embrace buildings for the exhibition of foreign manufactures; but I am assured by the director—Dr. Aristedes Moreira da Molta—that, upon proper application, space would be provided for such a building, should foreign exhibitors care to erect one. Dr. Molta would be glad to have an American exhibit, and the charges would be very small. Customs duties will be collected on all goods intended for the fair, but will be remitted at once upon proof of reshipment. No objections will be offered to selling goods in the fair, but delivery of goods sold can not be made until after the close of the fair, and a charge of 5 per cent will be levied on all such sales.

As the heavier kinds of machinery enter very little into the wants of these people, I would think it advisable to limit the goods to be shown to the lighter forms, such as plows, cornshellers, hoes, shovels, rakes; besides carpenter, machinist, and blacksmith tools; bolts, nuts, locks, and other house furnishings; tin, sheet iron, wire,

soaps, paper, oatmeal, etc., in packages; cotton and print goods, silks and novelties, men's and women's furnishings, leather, graphophones, and similar articles. Most of these things could be sold here, thereby reducing expenses.

My idea would be for a number of firms to combine and pool expenses and send agents here to superintend the exhibit. As lumber is very expensive and the people work very slowly, it would be a great saving if the building were gotten ready for erection in the United States; and if it were of tasteful design, suitable for a summer cottage, I am almost certain it could be sold here.

That such an exhibition would be well received, I am certain. There are here and in the other islands a large number of naturalized Americans who would advertise our goods. This will be the greatest event in the history of the islands for a century.

GEO. H. PICKERELL,

ST. MICHAEL'S, *March 5, 1901.*

Consul.

ELECTRIC TRAMWAYS IN THE CANARY ISLANDS.

The electric tramway connecting the port of Santa Cruz with the town of La Laguna will be open to the public on March 15, 1901. Besides carrying passengers, the managers have trucks for moving freight, principally fruit, which is the main export from this island. The power house is situated at La Cuesta, a little over half way (about 3 miles) between the two towns and at an elevation of 960 feet, La Laguna being 1,804 feet above the sea level and distant a little over 5.6 miles.

The cars start from the mole at the port and run through the principal street up the main road, which is built on a zigzag plan on account of the grade. It is but a single track, with switches at every kilometer, except in the town of Santa Cruz, where it runs up one and comes down another street. It is an overhead-trolley system, the wires being strung on poles, some of wood and others of iron. In the towns, it is strung over the street from house to house by rivets driven into houses opposite each other and connected with a wire.

The concession for this road was granted at Madrid and includes the whole of the road between Santa Cruz and Orotava. From the present terminus, there will be a regular service of automobiles to the town of Orotava until the tramway is finished. The total length of the line will then be 27 miles. The company is known as Cia. Electrica de Tramvia de Tenerife. It is a Belgian company and is capitalized for 1,600,000 francs (\$308,800). The rails, rolling

stock, and machinery were imported from Belgium, although part of the same was originally from Italy, France, and the United States. It is a 3-foot-3-inch gauge, and the concession provides that the road must be finished within five years.

There is also a concession for an electric tramway of double-track system between the ports of Luz and Las Palmas, in the island of Grand Canary, which has been granted to a Belgian company. The road will run along the seashore front and will extend from 4 to 5 miles. It will be a great improvement and no doubt a better paying investment than the Santa Cruz-La Laguna road, as Las Palmas is now virtually the principal town of these islands, and is doing about double the business of Teneriffe.

SOLOMON BERLINER,

TENERIFFE, *March 6, 1901.*

Consul.

NOTTINGHAM ELECTRIC RAILWAY.

Inquiries constantly reach this consulate regarding features of the electric-railway system under construction here and now partly in operation.

SYSTEM ACQUIRED BY THE CORPORATION.

The Nottingham horse tramways, originally 10 miles of single line, were constructed by a company which obtained Parliamentary powers in 1877 and commenced to run horse cars in September, 1878. The Nottingham corporation—*i. e.*, the city—had the option of purchase at the end of twenty-one years, or on July 23, 1898, but it came to an arrangement with the tramway company by which the system was handed over on October 16, 1897. The sum paid for the system was £81,500 (\$396,620).

The corporation immediately considered the question of necessary extensions, applied to Parliament in the session 1898-99 for powers to reconstruct the existing tramways, and proposed to extend to a total mileage equal to 40 miles of single line. The bill for the reconstruction and extension of the tramways was passed by Parliament in August, 1899.

ESTIMATED COST OF CONSTRUCTION.

The estimated cost of the new system, exclusive of the purchase price of the old, was £585,000 (\$2,846,903); but this amount also included the cost of repaving the whole width of many of the important thoroughfares through which the tramways pass, and also a street improvement amounting to £54,000 (\$262,791).

NEW POWER STATION.

The new power station, the contract for which was let to a local contractor, will not be ready for another year; but the finished section of the line, a run of 2 miles, which was opened to the public on January 1 this year, is at present operated from the electric-lighting station from a 700-horsepower steam generator, Willans' engine, and Siemens' multipolar 500-volt generator. Two of these plants are at present fixed. A third will be installed by the end of the year. These plants will, it is estimated, run all lines necessary until the new station is ready, when they will be used for lighting purposes. The boiler house is to be 240 by 53 feet and has room for sixteen boilers 30 by 8 feet working at a pressure of 160 pounds per square inch. Vicar's mechanical stokers will be fitted, and there will be storage room for 300 tons of coal. The engine house is to be 206 by 40 feet and will hold twelve 700-horsepower steam generators, Willans' compound central valve engines, and Siemens' multipolar generators.

PERMANENT WAY.

The rails, supplied by Messrs. Bolckow, Vaughan & Co., of Middlesbrough-on-Tees, weigh 107 pounds to the yard and are of the steel-girder type. They are 7 inches deep, 60 feet long, and no difficulty is experienced in handling them. The joints are designed to give, if possible, absolute rigidity. The fish plates weigh $77\frac{1}{2}$ pounds per pair, are each 2 feet 7 inches long, and are secured to the rails by eight bolts 1 inch in diameter. The sole plate weighs 52 pounds, is 2 feet 6 inches long, 8 inches wide, three-fourths of an inch thick, and is secured to the bottom flange of rail by four bolts, seven-eighths of an inch in diameter. The nuts are of the lock-nut type. The nuts and bolts are supplied by Messrs. Ibbotson Brothers, Limited, of Sheffield. The bonding is double, of the crown-bond type, and is placed between the fish plates and the rails, being protected by the former. Cross bonds from rail to rail are fixed every 40 yards. The long bonds are to pass the points and crossings and the cross bonds are of the Chicago type. All the points and crossings are curved. No straight ones are used. These are made by Messrs. Askham Bros. & Wilson, of Sheffield.

PAVING.

There is a concrete foundation laid for the rails, 6 inches thick, of Portland-cement concrete, 6 to 1, and the greater portion of the line now complete is paved with granite. On the other sections, however, a large quantity of Australian hard wood will be used; £17,000 (\$82,731) worth of this has been purchased. The permanent way has been entirely constructed by the staff of the corporation.

POLES.

The route consists for the most part of wide roads, and center-pole construction will prevail. The district is hilly, but the gradients are not very severe, a short length of 1 in 14 being the steepest. The poles have been supplied by Messrs. Spencer & Co., of Wednesbury. Every alternate pole is fitted with an arc lamp. The poles are let in to a depth of 6 feet.

TROLLEY WIRE.

The trolley wire is of hard-drawn copper, 0.409 inch in diameter. Most of the trolley wire used up to the present is made by the Birkenhead Wire Works Company, of Birkenhead. The overhead work generally is in the hands of Messrs. R. W. Blackwell & Co., of London.

CARS.

The double-deck cars will be used, except on one section, which will have a gradient of 1 in 10 and 1 in 12, each gradient about 400 yards long. The contract for fifty-seven cars was placed with Messrs. Dick, Kerr & Co., of London. The cars are arranged so as to have the staircase reversed. The seating capacity is 56 (22 in, 34 out), and each car is mounted on a 21E Brill truck, with a 6-foot wheel base. The wheels are made by Messrs. Miller & Co., of Edinburgh. Each car is equipped with two motors capable of giving 25 horsepower each, at a speed of 8 miles per hour. The motors and controllers are made by the British Electrical Manufacturing Company, Limited, of Preston. The controller is of the usual type, and a reversing switch is provided at each end of the car, interlocked with the series parallel switch, so that the reversal can not be effected except when the current is off. The trolley standard and pole are of the swiveling-arm type of Messrs. Blackwell & Co.'s latest inclosed-spring pattern, and each car is lighted by ten lamps. There is also a headlight at each end of the car, each fitted with two lamps and so arranged that whichever circuit is closed, one lamp in each headlight and three lamps in the car shall be on. Illuminated destination boxes are provided at each end of the cars. Both hand and Spencer's patent slipper brakes are fitted, and, besides these brakes, the car can almost instantly be stopped by reversing the motors. The interior of each car is paneled with oak, with beveled mirrors. The cars cost about £600 (\$2,920) each.

FEEDER CABLES.

These are supplied by the Callenders Cable and Construction Company, of London, and are insulated with vulcanized bitumen. These cables are run in vitrified stoneware conduits supplied by the Albion Clay Company, of Woodville. There are three pairs of

feeders to the present section of about 2 miles. The feeders and sectional pillars have been designed by the Callenders Cable Company, and the former are so arranged that in case the insulation of the line feeder breaks down, the switches can be reversed, so that the return feeder takes the place of the line feeder.

BRITISH VS. AMERICAN TRAMWAY BUILDING.

The practical reconstruction of the system on an electrical basis was begun in April, 1900; 2 miles of double track were in operation in January, 1901; an additional section of $4\frac{1}{2}$ miles of double track is expected to be ready for use in June this year, and the whole contemplated system as above, 20 miles of double track, in four years from now.

Two things will strike the American public as exceptionally notable in connection with this work, viz, the enormous expense involved and the equally astounding length of time required to complete the rather modest system. It should be added that, instead of beginning construction at or near convenient railway tracks, work so far has actually been begun at the termini, all of the heavy material being hauled by horses.

S. C. McFARLAND,

NOTTINGHAM, *March 10, 1901.*

Consul.

GENEVA-CHAMOUNI ELECTRIC RAILWAY.

It will be of interest to those who intend traveling in Europe this summer to know that an electric tram line will bring Chamouni—heretofore only to be reached by diligence or the more expensive luxury of a carriage—within easy reach from Geneva at a moderate cost. The line has been built at great expense by the Paris, Lyons, and Mediterranean Company from Fayet-St. Gervais, a station two hours by rail from Geneva and a trifle longer from Aix les Bains. During the summer season, it is intended to operate six trains daily between Geneva and Chamouni, the time of the run being, according to train, three and one-half to four hours. From Paris to Chamouni will take about fourteen hours.

The electric line from Fayet-St. Gervais to Chamouni is 20 kilometers ($12\frac{1}{2}$ miles) long, double tracks separated 1 meter ($39\frac{1}{3}$ inches). For 3.6 kilometers ($2\frac{1}{4}$ miles), the cars will ascend on cogs, the steepest slopes having a grade of 9 centimeters to the meter (3.54 inches to $39\frac{1}{3}$ inches).

The line is expected to be in operation by June or July at the latest, and will have a first and second class service. The fare, second class, from Le Fayet to Chamouni will be 1.95 francs (about 38 cents). The first-class fare has not yet been decided.

While many will, of course, continue to make the journey to Chamouni over the picturesque mountain passes, the simple, comfortable tram connection for even one way of the trip will prove a great convenience; and for the many hundreds of tourists of small means and restricted time, this line will make the mountain scenery of Chamouni an item in an itinerary that otherwise would have to be omitted.

HORACE LEE WASHINGTON.

GENEVA, *February 26, 1901.*

Consul.

BERLIN-HAMBURG RAPID TRANSIT.

Experiments are now being made by the firm of Siemens & Halske, of Berlin, with electric trains having a speed of 125 miles an hour. The main objects of these experiments is to complete the technical improvements for the wheels, necessary on account of the greatly increased rotation.

These experiments, it is now stated, have demonstrated that a speed of at least 125 miles per hour can be attained without difficulty. In using electric motive power, a transformation of the horizontal motion of the piston into one of rotation of the wheels is not necessary; the rotary motion of the motor can at once be transmitted to the axle of the coach or the motor axle can serve at the same time as the coach axle.

A pamphlet issued by the privy councilors of engineering—Messrs. Philippi and Griebel—states that with such electric roads of great speed, surface crossing is out of the question; railroads, streets, passages, and canals must be crossed either by bridges or tunnels. The quick succession of trains (intervals of six minutes) makes it imperative that the tracks must be kept clear at all times while being operated. Neither the public nor employees can be permitted to enter upon them. For this reason, the three-track system must be adopted and switches are to be avoided.

The plan for this rapid electric road between Berlin and Hamburg is as follows: The road will run between a point immediately adjoining the city of Berlin and one adjoining the city of Hamburg. The total length of the line will be about 156 miles. The subways and elevated tracks are already projected for the whole line. The estimated cost, according to Messrs. Philippi and Griebel, is \$33,000,000, among which are \$4,400,000 for the right of way, \$7,200,000 for grading, \$10,000,000 for construction, and \$5,000,000 for electric-power stations, passenger depots, and workshops.

RICHARD GUENTHER,

FRANKFORT, *February 19, 1901.*

Consul-General.

THE OVERHEAD FERRY AT ROUEN.*

Several letters have come to this office during the short time I have been here asking for photographs, drawings, and comprehensive descriptions of the "Pont Transbordeur" across the Seine at this place. This "bridge with suspended carrier," or "overhead ferry," is of especial interest as being the first of its kind in France, or, for that matter, as far as my knowledge extends, in Great Britain or America; and to appreciate properly its great importance and worth, one has but to call to mind the difficulties experienced by engineers in crossing rivers and channels. Allow me to preface by way of parenthesis that in the preparation of this report I am very much indebted to a pamphlet issued by F. Arnodin and A. de Palacio, the two Frenchmen who have patented the bridge with suspended carrier.

The crossing of channels has always been a difficult problem to solve, especially when such channels are near the sea and are thereby subject to tides, tidal or ordinary waves, and currents, to which may be added, in northern latitudes, the possibilities and risks of frost.

The chief difficulty arises from the fact that it is necessary for channels in all weathers to retain a free passage, mast high and of great width, in order not to interfere with the rights of navigation.

Among the means which the engineer has hitherto had at his disposal for the purpose of crossing rivers or channels may be named: Boats, or ordinary ferries; swing, draw, and bascule bridges; ordinary bridges; tunnels under the bed of channels; traveling carriers.

Boats, whether propelled by hand or steam, are, of course, subject to the state of the weather; they are carried out of their path by currents, and necessarily describe erratic courses, increasing the distance and danger. Their landing places must follow the tidal level, and this involves the obligation of providing, either at the point of departure or arrival, or both, acclivities, which interfere with the general traffic, especially when vehicles are to be carried or when a railway has to be served. Lastly, by night, fogs, storms, and ice floes may interfere with the working of the traffic, or even completely stop it. In order to obviate the inconvenience of variations of level in tidal channels, there have been built, it is true, especially on the Clyde, ferries with movable platforms; but these are ponderous machines requiring powerful engines and a numerous staff, all of which render their working very expensive. It is there-

* Although a description of this bridge has already appeared in the press of the United States, this report is printed on account of the novelty of the enterprise.

fore evident that although the movable platform is a real improvement over ordinary ferries which take in passengers and goods at variable levels, all the other drawbacks inherent to floating bodies remain, and some new ones are introduced. For these reasons, boats seem suitable only for crossings with little traffic, not likely to develop in future, or for those which are too wide to allow a bridge to be built over them.

Swing, draw, and bascule bridges are limited to relatively small openings. They can only be used over canals or sea channels which allow the water traffic to be temporarily interrupted and where a vessel can be under perfect control in all weathers, as the navigation is necessarily discontinued when the bridge is closed or lowered. These bridges can not be used over channels near the open sea, from which a vessel sometimes comes in stress of weather, unable to moderate her speed and make the signals necessary for the working of movable bridges. In point of fact, swing, draw, and bascule bridges can be used only over docks or inland canals or rivers.

Ordinary bridges are more satisfactory for navigation than the preceding, but if they are to cross a river leading to an important harbor, they must be built of such a height that the tallest masted ship may sail underneath, and sometimes these masts reach a height of nearly 200 feet above the water. Near the mouth of rivers the coast is generally low and flat, which necessitates the elevation to a height of nearly 200 feet, either by inclines or lifts, of all the traffic intended to go over the bridge. Supposing the gradient to be a reasonable one—say, 1 in 20—the traffic will have to go over an incline of more than 1,000 yards in length before reaching the platform of the bridge and then go down another incline of the same length in order to resume the natural level of the ground; that is to say, were the channel 300 yards wide, the traffic will have to move laboriously over more than 2,300 yards to go from shore to shore. From the point of view of the labor involved, an ordinary bridge is consequently a most expensive appliance, unless the banks are naturally very high. The approaches to the bridge also involve considerable works in order to reach such great heights, especially when, as is generally the case, the site of the bridge being near a town or masonry quays, a considerable area of land has to be purchased in order to provide space for constructing the approaches. It is, then, easy to understand why ordinary bridges crossing channels are so few—their first cost is too heavy. Some of those that exist, however, are remarkable, among which may be named the Forth Bridge, in Scotland, which is 151 feet above high water, and our own Brooklyn Bridge, at New York, with a height of only 135 feet, which nevertheless involved a cost of over \$15,000,000.

Tunnels are practicable only under certain geological circumstances and when the surface of the ground on both shores is not very prominent. They require, as ordinary bridges, inclines as approaches and stairs or lowering apparatus in order to reach the entrance. Their construction is also very costly and involves many contingencies which cause them to be looked upon as risky undertakings, for some great works of this kind had to be abandoned after their execution had been commenced; such are the Channel Tunnel between France and England and the tunnel under the Hudson between Jersey City and New York. Even when successful, tunnels are not much appreciated by the public for ordinary traffic, and we see that of Brunel under the Thames almost abandoned, although it connects densely populated districts.

Traveling carriers, the first specimen of which was established by M. Leroyer between St. Malo and St. Servan, are much more convenient and economical than any of the foregoing means. But these carriages are practicable only in unimportant passages where vessels have not to anchor, where the current is hardly perceptible, and where the bottom is rocky and exposed to view at low water, thus allowing the line to be examined and repaired when needed. This method must therefore be confined to special cases.

As may be seen from the foregoing brief review, all the methods named meet with numerous objections, which hitherto have appeared so serious that even in this period of intensely active traffic, most channels remain without prompt and easy means of crossing them.

The system exemplified by the Transbordeur here at Rouen, which will be briefly described, remedies the drawbacks mentioned above. It is called by the inventors the transshipping bridge (*pont à transbordeur*), and is due to the combined labor of Messrs. De Palacio and Arnodin, to whom M. Brüll, a former president of the Society of Civil Engineers in France, lent his assistance for the verification of the conditions of stability.

The advantages of the system are:

- (1) The channel to be crossed is left entirely clear at all hours, without requiring vessels to make any special signals or modify their rate of speed any more than they would in the case of a cross-channel ferry.

- (2) No increase of distance or ascent or descent is forced on the traffic in order to cross from one shore to the other.

The essential part of the system may be described as a horizontal railway supported by a bridge spanning the channel and built up at such a height as will allow the tallest masted vessels frequenting the channel to pass beneath. Any kind of bridge may be used, provided the rectangular opening for navigation is left entirely clear;

except that arched bridges, which would reduce that rectangular area, must be excluded. Suspension bridges, however, **owing to the facility they offer for spanning wide channels, the great advantage they possess in permitting erection by "launching" without any scaffolding interfering with the navigation, the economy of their construction, the little area they offer to wind pressure, and, lastly, their lightness and elegance,** seem to command preference in the **majority of cases.** This is the kind of bridge in Rouen.

The platform of the bridge carries two lines of rails, over which a carriage on small wheels rolls, the number of wheels varying with the weight to be carried.

The rollers are connected with a movable frame under the line of rails, which may freely move in a longitudinal direction quite close to the platform and from one end to the other of same. We have thus a rudimentary vehicle which can cross the channel without interfering in any way with the opening, which is to remain clear. In order to make this vehicle of practical use, iron rods or cables are attached to the frame above mentioned, the object of these being to carry a platform, called by the French inventors *transbordeur*, or carrier from shore to shore, hanging at the same level as that of the quays on each bank, but in any case above high water and the reach of waves.

The frame can roll over the rails in both directions at pleasure; the suspended carrier can therefore land on one shore or the other at will, as it follows the frame in the same way as the car follows the balloon.

In order to obviate any swinging motion which might result from the pressure of the wind or the forward motion of the carrier itself, the rods by which the latter is suspended are arranged in triangles, both in the longitudinal and transversal directions. There is thus a little railway for crossing the river, with this difference, that the body of the vehicle, instead of being above the rails and wheels as usual, is some 140 or 160 feet below these. It possesses, nevertheless, the speed and regularity of motion which can be obtained on any straight and horizontal railway line, with the advantage that, thanks to its long suspension, this new kind of wagon enjoys a smoother motion than the best railway coaches, without the intervention of springs or other expensive and cumbersome appliances in order to modify the vibrations.

The motion of the frame is obtained, without expending much power, by means of any motor—the kind most suitable to local circumstances—cable driven by steam, water under high pressure, compressed air, gas, or oil, or, better still, by electricity. But in the last case the dynamo, instead of being erected on shore, as the



steam engine, is preferably placed on the movable frame, which it carries along with itself by means of a pinion working into the teeth of a rack fixed to the bridge.

Whatever may be the kind of engine employed, it must be able to work backward or forward instantaneously. It may, in fact, be at any moment necessary to reverse the direction on account of an unforeseen obstacle.

The accompanying cut shows the bridge with a platform part way up the piers. This can be reached by stairs or elevators, and used as a restaurant, etc. In the bridge at Rouen, however, this feature was omitted.

It will be observed that this is the most favorable solution of the problem of crossing maritime channels.

The latitude it leaves for fixing dimensions—height or length—without any unreasonable increase in its cost permits its use over many rivers and inlets requiring easy communication from shore to shore.

It affords greater speed and more regularity than a boat, allowing twice or three times as many crossings to be made as with the latter, without being subject to the same causes of interruption.

It does not even momentarily interrupt navigation, nor does it compel the traffic to make laborious ascents as in the ordinary bridge, or an ascent and descent to an unpleasant passage through a tunnel.

It realizes the minimum distance to be crossed, as its course is straight and horizontal; it consumes very little motive power, and this can be supplied by any kind of motor. Lastly, it is economical in construction.

E. M. J. DELLEPIANE,

ROUEN, *February 2, 1901.*

Vice-Consul.

PROPOSED TARIFF ON CORN IN FRANCE.

The agrarian and other industries of France which are affected by the increasing use of foreign corn have become alarmed at the volume which the importations of that cereal have attained.* During the past year, several bills have been laid before the Chamber of Deputies, one of which provides for the temporary admission of corn under certain conditions, and another for the increase of the customs

* The following are the total importations of corn into France during the last three years, in bushels of 55 pounds, according to the official French customs statistics: In 1898, 24,026,964 bushels; 1899, 23,119,476 bushels; 1900, 14,889,756 bushels. The following quantities were received from the United States alone: In 1898, 9,936,672 bushels; 1899, 6,192,612 bushels; 1900, 4,789,360 bushels; total, 20,916,144 bushels. America's greatest competitor is the Argentine Republic, which, during the last three years, sent to France 21,165,600 bushels.

duties on corn and on flour made from corn. The proposed duties on corn are 7 francs (\$1.35) per 100 kilograms (220.46 pounds), or about 33 cents per bushel, instead of 3 francs (57.9 cents), or about 15 cents per bushel, as at present; and on flour made from corn, 10 francs (\$1.93) per 100 kilograms, instead of 5 francs (96.5 cents). These propositions were referred to the customs committee of the lower house for investigation, with a request that a report be made. The committee extended an invitation to all those interested in the question to appear before it or to submit written arguments. The committee has finished its labors and has recently presented its report.

This document contains much information regarding the starch, grain, and beet-root distilling, the milling, and other industries of France in which corn is used or with which the grain enters into competition. As this may be of interest to our corn growers and shippers, I give the following résumé of the arguments which were used for and against the propositions, and the conclusions of the committee.

GRAIN DISTILLERS.

The grain distillers claim that when the present duty was levied on corn in 1890, their industry was struck a heavy blow, which placed them in a position in which it was hard to battle against their most formidable, if not their only, competitors—the distillers of beet root. They tried the distillation of alcohol from potatoes and Jerusalem artichokes, but were not successful; and it is due only to the great improvements which they have made in their machinery that they have been able to exist.

By a decree of February 20, 1892, corn was granted temporary admission into France; but this régime was not successful. The French corn distillers found it impossible to compete in foreign markets with German alcohol. The price of the latter was lower than even that of French alcohol distilled from beet root, owing to the bounty paid by the German Government to alcohol made in the latter country. The grain distillers argue that it is in the interests of the beet-root distillers that the increased duty is asked; but in reality, the latter industry is already in a prosperous state, to prove which they cite the following statistics:

Production of beet-root alcohol in France.

Year.	Quantity.	
	<i>Hectoliters.</i>	<i>Gallons.</i>
1897	522,400	13,801,808
1898	803,132	21,218,747
1899	950,492	25,111,999
1900	1,030,207	27,218,069

Their own industry, however, has deteriorated, falling from 300,950 hectoliters (7,951,099 gallons), the production for the first five months of the season 1898-99, to 271,630 hectoliters (7,176,465 gallons), the production during a corresponding period of 1899-1900.

The committee concludes that the improvements which have been made in distilling machinery and in the methods employed in the distillation of grain more than offset the customs duty on corn; that even if it should be found impossible to make use of corn on account of its price, there remain other cereals, such as low-grade barley, rye, potatoes—which are all grown in France—and rice from the French colony of Indo China; so that a small increase of the duty on foreign corn will not seriously affect the prosperity of the grain-distilling industry.

YEAST MAKERS.

The distillers who are engaged in making yeast claim that an increase of the duties on corn would utterly destroy their industry and prevent further exportations of their product. Already, they meet with great competition in the export trade from the Belgian yeast makers, who are favored by a modification of the fiscal laws of Belgium (which was made in 1898), by the lower price of coal and labor in that country, and by the fact that the raw materials used enter free of duty into Belgium.

In Germany, the yeast industry is protected by a customs duty of 81.25 francs (\$15.68) per 100 kilograms (220.46 pounds), and the establishment of an export bounty is being considered.

The committee declares that this industry is one of the most prosperous, that the yeast makers have almost entirely replaced barley with foreign corn, and that the native cereal should be protected. A small increase in the customs duty on corn would not be a serious burden, as the industry is already protected by a customs duty of 25 francs per 100 kilograms (\$4.825 per 220.46 pounds) levied on foreign yeast.

STARCH MAKERS.

The starch makers claim that their industry is already placed under heavy burdens—customs duties on the raw material (corn), an excise tax on the amylolines, and an internal-revenue tax on glucose; that their establishments are fitted up principally for the making of starch from corn; and that if it should become necessary to substitute rice, it would entail very heavy expense in altering the machinery. They say: "We are menaced by a most alarming competition from the Americans, who have copied our machines, taken from us some of our workmen, use a raw material free from duties, and so can compete with us in our own markets, or at least can take our

place in those of foreign countries." The starch made from corn is extensively used by the wool manufacturers in the north of France in the preparation of cloth. The starch makers say that they are obliged to use foreign corn, as the native product is rarely dry enough to bear transportation.

The committee argues that there being so many products which may be used in the production of starch, the increase of duty on foreign corn would not seriously hamper the French starch makers. Without counting rice, they can use inferior qualities of wheat which has become deteriorated so as not to be fit for milling purposes. In 1899, corn to the value of 64,317.73 francs (\$12,413) was granted temporary admission for the use of the starch and glucose manufacturers, who reexported 800 tons of glucose and 2,017 tons of starch. Therefore, the committee claims that the increase of the duty on corn could have but little influence on the export trade of these products. Besides, starch is protected by a duty of 14 francs per 100 kilograms (\$2.70 per 220.46 pounds).

BREWERS.

The brewers assert that the brewing industry of France has been very much ameliorated, owing to the improvements which have been made in the machinery and in the methods used in making beer; that they can produce beer as cheaply, and of as good quality, as their competitors; but, as the latter use corn, they are also obliged to employ that cereal in order to maintain their position; that corn replaces, not the barley malt, but the glucose and the rice; that it produces a much mellower beer than the latter products; that they only use the grits, or "semoules," of corn in beer of high fermentation, in beer of an ordinary quality, and in a proportion varying from 5 to 25 per cent, according to the quality desired, a larger proportion rendering the filtration of the beer difficult. They claim also that an increase of the customs duties on corn would place them in a position inferior to that of their Belgian and German competitors and would suppress the use of corn in the manufacture of beer.

The committee is of the opinion that the increasing use of corn for beer-making purposes will tend to lower the quality of the beer and thus be hurtful to an industry which has lately shown great prosperity. The exportation of beer from France has in ten years increased from 35,860 hectoliters (947,421 gallons) to 81,148 hectoliters (2,144,030 gallons), an increase in value of 2,295,800 francs (\$443,089). The importation during the same period has decreased from 174,415 hectoliters (4,608,044 gallons) to 120,826 hectoliters (3,192,223 gallons), a decrease in value of 1,400,550 francs (\$270,306).

The production has increased 1,200,000 hectoliters (31,704,000 gallons). The committee further contends that the culture of barley in France, which to-day is in a flourishing condition, would be seriously menaced by the use of corn by the brewers, and that the proposed increase in the customs duties on corn will not hurt the brewing industry and will even be insufficient to protect the native barley from its foreign competitor.

LOCAL TRANSPORTATION COMPANIES.

The local transportation companies object to any increase of the duty on corn, on the ground that it would greatly augment their expenses. The use of corn for the nourishment of their horses has of late greatly increased, almost entirely replacing oats, not only on account of its cheapness, but also owing to its nutritive qualities. The oats which the companies use is mostly imported, as the native crop is seldom sufficient for the wants of the country.

The committee claims that the price of horse feed has shown a progressive diminution during the past ten years; that the slight increase in the budget of expenses of the transportation companies, due to the new duty on corn, would be more than compensated by the protection given to native grains.

CHAMBERS OF COMMERCE.

Seventeen chambers of commerce of France have protested against any increase of the customs duties on corn. They argue that the change in the tariff would benefit the beet-root distillers at the expense of the grain distillers, when the former industry is already in a flourishing condition; that foreign corn does not seriously interfere with the other native agricultural products; that France does not produce sufficient quantities of barley and oats for its own consumption, making it necessary to apply to foreign markets to supply the deficiency; that corn is used extensively by the French farmers for fattening their cattle, and that the by-products furnished by the grain distillers, starch makers, brewers, and others are employed for the same purpose; that the governments of the great corn-producing countries may resort to reprisals if the duty is increased on that cereal.

The committee claims that it has already answered the arguments set forth by the chambers of commerce, except that of reprisals. To this it replies:

We have nothing to fear from reprisals from anyone, inasmuch as the countries which send us corn all have high protective tariffs which we scarcely hope will be lowered in our favor. While we enjoy the treatment of the most-favored nation, there is not much fear that these agreements will be broken for a question so relatively unimportant.

MILLERS.

The millers claim that, owing to the great improvements which have been made in their establishments, they could produce 40 per cent more flour than is required for home consumption, and that their exportations only amount to about 8 per cent of the overproduction. At Marseilles particularly, the one hundred and fifty-three mills there could grind 2,500 tons of grain daily, whereas actually they are only grinding a little over half this amount; that if corn were allowed to be admitted into France temporarily their mills could be employed in the manufacture of corn flour and semoules for human-food purposes and for fattening cattle and grits for the brewers; that markets for these products could be found in Finland, Italy, the Danubian provinces, and the Levant. The millers protest against any increase in the customs duties on corn. Of the 110,000 tons of that cereal which were imported into Marseilles in 1899, only 1,000 tons were used in the distilleries; a small portion was employed in making grits for the brewers, the remainder having been used by the millers and the farmers, who can not do without the cereal, especially in the region of the southeast of France.

The above is a résumé of the written and oral arguments which were heard by the committee against any increase of the customs duties on corn and in favor of its temporary admission; the following is a résumé of the arguments to the contrary:

DISTILLERS OF BEET ROOT.

The beet distillers claim that, since the duty of 3 francs (58 cents) was levied on corn to protect their industry, the grain distillers have improved their machinery and their processes of distillation to such a degree that the present duty is no longer a protection; that by the use of sugar-producing fungi (*mucédinées saccharifiantes*) they can make 39 liters (10.3 gallons) of alcohol per 100 kilograms (220.46 pounds) of corn, instead of, as formerly, 33 liters (8.7 gallons), without increasing the expense of manufacture.

The yeast makers have also improved their methods, so that while in 1890 they obtained by the "Viennois" process 12 kilograms (26.46 pounds) of yeast and 28 liters (7.4 gallons) of alcohol per 100 kilograms of grain, they are able to-day, by the "æroleuvre" process, to derive 20 to 22 kilograms (44 to 48.5 pounds) of yeast and 22 to 24 liters (5.8 to 6.34 gallons) of alcohol per 100 kilograms.

According to *La Revue Universelle de la Distillerie* of December 10, 1899, a new process has been recently introduced into several of the distilleries of France by which there can be obtained from 100 kilograms (220.46 pounds) of grain 29 liters (7.66 gallons) of alcohol.

The beet-root distillers also claim that the yeast makers formerly used in their production one-third rye, one-third corn, and one-third barley malt; but now they substitute the corn for the barley, using two-fifths rye and three-fifths corn. In estimating the price of corn at 16 francs (\$3.09) per 100 kilograms (220.46 pounds) and barley at 16.25 francs (\$3.14), the cost of the malt would be: Corn malt, 21.15 francs per 100 kilograms (\$4.08 per 220.46 pounds); barley malt, 25 francs per 100 kilograms (\$4.825 per 220.46 pounds).

The brewers are more and more substituting corn for barley in making their beers. They use the corn in the form of semoules, called grits, which are quoted at 20 to 21 francs (\$3.86 to \$4.05) per 100 kilograms, while the French barley malt is quoted at 28 to 28.50 francs (\$5.40 to \$5.50).

On every side the foreign product replaces the native one, and if we consider that our manufacturers can procure corn in almost unlimited quantities; that this grain is often sold at a very low price—we have seen it at 10.50 francs per 100 kilograms (\$2.03 per 220.46 pounds) duty paid upon the quays at French ports—we can foresee the moment when the production of alcohol from corn will replace that made from beets, of which we can not hope to lower the cost of production without ruining our agricultural interests, already much oppressed.

MANUFACTURERS OF FECULÆ.

These manufacturers also claim that their industry is in a precarious condition. Twenty-five years ago, there were 600 manufacturers engaged in making feculæ, but at the present time there are only 282 establishments, notwithstanding the protection given to this industry against the German and Dutch feculæ by the customs tariff. On account of the competition of foreign corn, they are only able to manufacture feculæ from potatoes. This competition shows itself in two different ways: The principal purchasers of feculæ are the glucose manufacturers, who sell their product to the brewers. The feculæ are met in competition with the product called "amidin," an amylaceous substance extracted from cereals—wheat, corn etc.—which glucose manufacturers use in making glucose and the brewers, in the form of corn grits, in brewing beer to replace barley malt. The corn grits, on being transformed into alcohol, also replaces glucose.

The feculæ makers argue that if their industry is not further protected it will entirely disappear, and thus cause a loss to the agricultural industry of France. At the present time, 13,227,600 bushels of potatoes are used annually in making feculæ, at an average cost of about 21.25 cents per bushel.

MALTSTERS.

The malt industry of France has only been in existence for the last thirty years. Formerly, all the malt used for beer-making purposes was imported exclusively from Germany. Notwithstanding

the progressive increase in the manufacture of beer, the French maltsters have, from importers, become exporters of their product. In 1899, 19,310 tons of malt were sent to foreign countries, and only 3,257 tons were imported; in 1900, 17,908 tons were exported and 3,079 tons imported. In their argument before the committee the maltsters state:

Lately the Belgians, in making their beer, have substituted corn under the form of grits for barley malt, which can be employed, so it is said, in a varying proportion, according to the quality of beer desired, up as high as 90 per cent, against 10 per cent of barley malt.

Another process, called the "Billings" process, would give still more economical results, since corn can be used in its native state without any preparation, in a proportion of 50 per cent.

The Kock process consists in the use of a chemical product (chloride of aluminum) which has the property of making the starch soluble and of precipitating the azotic matters. It permits the use of corn in grain in an almost unlimited proportion.

Our maltsters await your decision, and, if we are not protected, we are ready to substitute by these various systems corn for barley malt.

AGRICULTURAL SOCIETIES.

Numerous agricultural societies and syndicates were heard by the committee. Most all of them protested against even the temporary admission of corn, and, without exception, they demanded that the duty on corn should be increased to 7 francs (\$1.35) per 100 kilograms (220.46 pounds). The following is an extract from a communication sent to the committee by the Société des Agriculteurs de France:

Up to the present, the Government has tried to defend our products against that invading cereal—corn—by a customs duty, insufficient it is true, and by an excise tax of 4 francs (77 cents) upon starch made from corn used in the glucose industry, a tax unfortunately seldom applied, on account of numerous frauds. The bill submitted on February 18 would give the freedom of the country to corn flour, would annihilate at a single blow the customs duties and excise tax, and would sanction officially the substitution, so alarming to our agricultural interests, of corn for wheat, for beets, and for potatoes. One can say that our agriculture has no more formidable an enemy than the foreign corn; there is in it a great danger.

The committee, before summing up the arguments advanced by the different industries interested in the proposed legislation and before stating the reasons for its conclusions, gives a short history of the French distilling industries:

It was in 1854 only that the distilling of beet root commenced. Before that period, all French alcohol was produced in the grape-growing countries by the distillation of wine and in the north of France by the distillation of grain.

About 1854, the oldium having ravaged the vineyards of the south, the wine failed, and, as at this time the cost of grain was very high, the price of alcohol reached the sum of 250 francs (\$48.25) per hectoliter (26.417 gallons). It was then that a chemist named Dubrunfaut first sought and found the process of distilling alcohol from beet roots. The scarcity of alcohol was not of long duration. The

beet-root distilleries developed rapidly in all the beet-producing regions. They prospered during several years, but in the meantime the way of ridding the grapevines of the oidium by the use of sulphur was discovered. Alcohol distilled from wine again made its appearance in our markets, and on account of this competition an overproduction was the result. There was consequently a break in the prices. The price of alcohol fell in a few weeks from 120 francs to 33 francs (\$23.16 to \$6.37) per hectoliter (26.417 gallons), and many of the beet-root distilleries had to close their doors.

On account of the increasing demands for alcohol in the industries and for human consumption, that made from beet root became more and more indispensable. This industry again became prosperous, and the vineyards of France having been nearly destroyed by the phylloxera, the product of the beet root replaced to a great extent that made from wine. The industry is still in a satisfactory condition, notwithstanding the relatively low price of alcohol.

Grain distillation has existed a long time in the northern region of France, but it sensibly developed at the time the phylloxera ravaged the great vineyards of the south. It was found necessary to replace the wine alcohols by alcohol as pure as possible and of good flavor for use in the manufacture of liqueurs and for other special purposes. For a long time, foreign grain supplied the raw material for the greater part of this industry; but the customs duties of 3 francs (57.9 cents) per 100 kilograms (220.46 pounds) upon corn, etc., established by the law of July 1, 1890, greatly diminished the distillation of these grains, which was still more decreased by the customs duties of 3 francs per 100 kilograms placed upon barley, rye, and oats by the law of January 11, 1892. On the other hand, the levying of customs duties on foreign molasses of 10 centimes (1.93 cents) per law of November 17, 1894, and 20 centimes (3.86 cents) per law of July 14, 1897, favored the distillers of grain alcohol, whose products gradually replaced those derived from the distillation of foreign molasses.

From 1891, since the establishment of the customs duties of 3 francs upon corn, some distillers have tried the distillation of alcohol from potatoes. This method of making alcohol has met with great success in Germany; but in France the results have not been favorable. Our production of alcohol from potatoes, which in 1892 amounted to 9,949 hectoliters (262,853 gallons) and in 1893 to 11,589 hectoliters (306,181 gallons), in 1898 only reached the sum of 1,001 hectoliters (26,446 gallons). In other words, it may be said that the industry no longer exists.

We should add that a new factor has just entered, or rather reentered, the arena. Our great vineyards of the south have been entirely restored, and in a few years those of the whole of France will be in a healthy condition. Since last year, we have had an overproduction of wine. This year the vintage will be still more abundant, and to this surplus must be added the vintages of Algeria and Tunis, where new vineyards are planted every year.

What are we to do with this enormous production, of which only a portion can enter into consumption or be exported? The reply is not doubtful. We should distill all of our excess in certain parts of the south, because certain wines can only be transported with great risk; also in other regions, because we have to keep up the manufacture of the marvelous brandies, so much sought for in France and in foreign markets, which all kinds of falsifications have not been able to imitate. We should distill a part of our wines, above all, because we will only find sale for the excess of the vintage by lowering the selling prices to a figure which would be ruinous to our grape growers. It is this production of alcohol which we must protect.

Such is the situation of our distilling industries—on one side, the grain distillers, who use most all corn, a foreign cereal, and of which the products, in a

great measure, up to the present time have served to replace wine alcohols, of which we are in need; on the other hand, the distillers of beet root, a product of our soil, and the wine-distilling industry, which has a tendency to be rejuvenated.

GERMAN DISTILLERIES.

The report shows how by the laws of June 24, 1887—modified by the laws of June 18, 1891; June 16, 1895; and April 4, 1898—the German Government has encouraged the distillation of alcohol by the farmers from their own products.

The German law divides the distillers into three classes: (1) Agricultural distillers; (2) fruit distillers; (3) industrial distillers.

Agricultural distillers are those which, during the entire year, employ exclusively wheat and potatoes, the residues of which are used either as forage for cattle or as a manure.

By a decision of the Federal Council, a distiller can be considered as belonging to the first class mentioned above, who, under exceptional circumstances, should sell his residues, or who, besides potatoes and wheat, should use nonfarinaceous products raised on his own property.

The agricultural distillers pay a tax based upon the dimensions of their maceration vats. This tax is 1.31 marks (31.2 cents) per hectoliter (26.417 gallons).

In distilleries which are only in use from September 16 to June 15, the tax is collectible in the following proportions: Six-tenths if the average amount used in the vats does not exceed 1,050 liters (1,109 quarts); eight-tenths if the average is between 1,050 and 1,500 liters (1,109 and 1,585 quarts); and nine-tenths if it exceeds 1,500 liters, but not over 3,000 liters (3,170 quarts).

The distilleries which distill fruit or residues of grapes, wastes from breweries, wines, cider, wine lees, etc., and not any farinaceous substances, molasses, beets, or beet juice pay the tax by hectoliter of the raw material. This tax, which varies according to the material used, is levied as follows: Four-tenths of the whole tax upon materials used by the distillers which do not produce more than 50 liters (52.8 quarts) of pure alcohol per year and eight-tenths upon raw materials used which produce from 50 to 100 liters (52.8 to 105.67 quarts) per year.

For the industrial distillers, this is an additional tax to the consumption tax, and in their case amounts to 4.8 cents per liter of pure alcohol.

The agricultural and fruit distillers can, upon demand, be exempted from the tax on the raw materials used in their vats, but they must pay a tax, as follows:

Distilleries not producing more than 100 hectoliters (2,642 gallons) of pure alcohol per year during the months when they are not

making yeast, 2.85 cents per liter (1.0567 quarts), and during the months when yeast is made 3.87 cents per liter; distilleries which produce from 100 to 150 hectoliters (2,642 to 3,962.5 gallons) per year during the months when yeast is not made, 3.33 cents per liter, and during the months when yeast is made, 4.25 cents per liter. In the fruit distilleries, this tax is 1.9 cents per liter for those not producing more than 50 liters (52.8 quarts) of pure alcohol per year; 3.8 cents for those not producing more than 100 liters (105.6 quarts) annually. A distillation tax is imposed upon those distilleries making more than 300 hectoliters (7,926 gallons) of pure alcohol annually; but only upon the excess of the above amount. This tax is progressive and varies from 1.19 cents to \$1.49 per hectoliter (26.417 gallons) of alcohol, according to the amount of alcohol made. Agricultural distilleries which were owned by cooperative societies and were in operation April 1, 1895, are entitled to a reduction of one-fourth of this tax, based upon the total amount of their annual production before the present law went into effect. The tax is increased \$3.57 per hectoliter of pure alcohol for individual distillers using molasses, beet root, or juice of beet root, if their production exceeds by one-fifth the amount allowed them by law.

Distilleries which shall hereafter be established for the distillation of molasses, beet root, or beet juice will pay \$3.57 per hectoliter of pure alcohol upon the total amount of their output, even though this output may not attain 300 hectoliters (7,926 gallons).

A bounty of \$1.43 per hectoliter of pure alcohol is allowed to all alcohol or products whose base is alcohol exported which are entitled to an exemption from, or a restitution of, the consumption tax. This bounty can be given to alcohol converted into vinegar.

From the above information, it would appear that the German distillers of beet root and molasses are subjected to conditions which prevent the establishment of new distilleries of these products.

The agricultural distillers are so protected by law that they have great advantages over their industrial competitors.

The German law encourages the production of cereals, potatoes, the raising and fattening of cattle, and, above all, the improvement of the farm lands.

FRENCH DISTILLERIES.

The French law regulating the distillation of alcohol divides the distillers into two classes:

(1) The agricultural or private distillers (*bouilleurs de cru*)—that is to say, the owners of farms or those who farm on shares who distill wine, cider, lees, residue of grapes (*marcs*), cherries, or plums,

which are produced on their own property. They can distill freely all of the above products at their own houses, with the exception of those who live in a city of more than 4,000 inhabitants. The consumption tax of 220 francs (\$42.46) per hectoliter (26.417 gallons) is not collected upon alcohol consumed on the premises, but only upon that which is sold and delivered.

(2) The industrial or professional distillers, or all those who distill farinaceous matters, molasses, beet root, wine, cider, etc., which are not produced by them. These distillers must make returns of their machinery and production, and their establishments are under constant supervision of the internal-revenue officers.

The Government collects only one tax—the consumption tax of 220 francs per hectoliter (\$42.46 per 26.417 gallons)—which is the same for everyone. Alcohol which by the addition of certain substances is so changed that it can not be used as a drink has only to pay a tax of 25 centimes (4.8 cents) per hectoliter, plus a sum of 80 centimes (15.4 cents) to cover the necessary expenses of the analyses of samples and of the superintendence of the operations by which it is changed. This alcohol, before being changed, should gauge less than 90 per cent at the temperature of 15° C., and should not contain more than 1 per cent of essential oils.

From the above, it will be seen that the French home distiller, although not under the supervision of the internal-revenue authorities, must pay the same tax as the professional distillers, except upon the amount he actually consumes in his household. He can only distill certain products of his own raising, such as wine, fruit, etc.

The German farmer distiller can distill all the products of his farm, on the condition that he use the residue of his distillery for fattening his cattle and for manuring his land. The smaller his production the greater is the reduction of the taxes he has to pay. The taxes of the industrial distillers are so heavy that they can not produce their alcohol as cheaply as the farmer distiller.

The committee has submitted two propositions, with a request that they be acted upon favorably by Parliament. They are as follows:

FIRST BILL.

ARTICLE 1. Temporary admission is accorded to corn intended to be converted into semoules, semoulettes, and flour, to be used as human food, for fattening cattle, and for the making of grits for brewing purposes.

ART. 2. The storing in bonded warehouses of manufactured products of corn which has been admitted temporarily shall not be considered as an exportation.

ART. 3. The reexportation shall consist only of products manufactured from the identical corn which was admitted temporarily.

ART. 4. Decrees, by the advice of the consulting committee of arts and manufactures, will determine the conditions under which this law shall be applied.

SECOND BILL.

ARTICLE I. Commencing with the promulgation of the present law, the general customs tariff will be modified as follows:

No. 72. Corn.

Grain.—General tariff, 5 francs (96 cents), instead of 3 francs (58 cents), per 100 kilograms (220.46 pounds).

Flour.—General tariff, 8 francs (\$1.54), instead of 5 francs, per 100 kilograms (220.46 pounds).

A. M. THACKARA,

HAVRE, *February 28, 1901.*

Consul.

AGRICULTURAL ORGANIZATIONS IN FRANCE.

One of the most conspicuous features of the Third Republic of France is the organization of societies of a semisocial and business character which, in their wide scope, include all classes of society—employers and employees, the wealthy and the poor, from the child of 6 years old to the oldest citizen of the nation. They are based upon the principle of fraternity, the development of which, it is contended, is the especial province of the Third Republic, a duty bequeathed to it by the First and Second Republics, under which liberty and equality are supposed to have received their fullest practical application. In reports from this consulate to the Department entitled "Workingmen's aid societies," dated January 19, 1900, "Labor conditions in France," dated July 25, 1900, and "French silk industry," May 10, 1900,* I gave an outline of several movements started with a view to inaugurating a closer fraternity among the French people. The progress of this movement in the organization of agricultural syndicates, or farmers' alliances as we might call them, is in the same channel.

SYNDICATES.

Associations of farmers called "syndicats agricoles" have been organized all over France since the passage of the law of March 21, 1884, their aim being to further the economic, industrial, commercial, and agricultural interests of their members, and to attach the farmer more closely to the country. They are organized under a general law which authorizes any twenty persons of one trade or of several similar trades to combine in a society. The dues are fixed at from 10 cents to \$1 per month.

The syndicates are empowered to possess such realty as is necessary for their meetings, library, and lecture rooms, to establish among their members banks to provide pensions to their members

*ADVANCE SHEETS NOS. 679, 823, and 768 (CONSULAR REPORTS NOS. 236, 242, and 240, respectively).

or relief in sickness, and to open offices for the finding of employment for the unemployed. They may become a center or school for the discussion and study of all questions pertaining to their special calling, and they may organize a tribunal for the solution of all contentions among workingmen or between capital and labor. A member of a syndicate can withdraw from it whenever he pleases, but is bound by law to pay his dues for the current year. A retiring member reserves the right to a pension and relief from the fund which he has contributed to create.

Should a syndicate exceed its authority in acquiring realty, those interested may call upon the Procureur de la République (the district attorney) to annul the purchase, or, if purchases prove a burden to the syndicate, the same law officer may be called upon to dispose of them. In the event of dissolution, the property will revert to those who contributed it, to their heirs or assigns.

The law officer of the Department or commune where the syndicate is located may call upon the court to dissolve a syndicate and to annul all purchases or other acts made in violation of law or of the will of a majority of its members. False declarations made by the officers or any violation of laws provided for the organization and government of these syndicates are punishable by fines of 16, 200, and 500 francs (\$3.11, \$38.60, and \$96.50). The organic law upon which these societies are based is applicable to the French colonies of Algeria, Tunis, Guadeloupe, Martinique, and La Réunion; but it only applies to persons who are native or naturalized Frenchmen.

There had been established under this law, and were in operation January 1, 1900, 7,089 societies, divided as follows among 8,501,685 farmers and farm workers of the two sexes in France:

Syndicates of employers.....	2, 157
Syndicates of workingmen.....	2, 685
Employers and workingmen mixed.....	170
Agriculturists.....	2, 067
Total.....	7, 089

This is an increase of 656 over the agricultural syndicates of 1899. It was almost evenly divided between the workingmen and owners of farms.

To organize under the law of 1884, it is necessary that one or more persons should form a group of about twenty men of good standing. These recruit a number of honorary members, often of the wealthy or of the titled gentry, and they proceed to elect a president, one or two vice-presidents, a board of administrators (consisting of from three to nine persons), a secretary, and a treasurer. The board thus organized, by-laws and constitution are drawn up. To facilitate this, sample copies of printed constitutions and by-laws

are provided. Once adopted, the president deposits one copy at the town hall with the mayor and one is sent to the law officer of the county—for example, to the prosecuting attorney. Each contains a list of the officers.

Of the 1,192,260 members of the various syndicates, the farmers number 512,794.

UNIONS.

These farmers' syndicates combine and organize in a larger society, called a union, of which there are ten in France, to wit: The Northern Union, headquarters in Boulogne; the Normandy Union, headquarters at Caen; the Breton Agricultural Union, Rennes; the Western Union, Angers; the Burgundy Union, Dijon; the Alpine and Provence Union, Marseilles; the Southwestern Union, Bordeaux; the Union du Midi, Toulouse; the Southeastern Union, Lyons.

Over these is a central body in Paris, to which all the subordinate unions report and which represents their interests before the French Parliament, railroad companies, and the public generally.

A union has all the rights and powers of the syndicates, except that it can not sue or be sued or hold real property, prerogatives which are conferred only upon the syndicates and which they can not delegate.

SUBDIVISIONS.

Each society is divided into a number of subordinate societies. The departmental or county union is divided into *arrondissement* syndicates, these into cantonal syndicates, and these in turn into communal syndicates.

The agricultural societies, therefore, extend through all the ramifications of the body politic of France, from the Central Government down to the lowest political unit. A corresponding division in our country would involve national, State, county, township, and hamlet agricultural boards, all interlinked and interdependent.

In the by-laws, the general object of a syndicate is stated to be "the study of the interests of agriculture."

The special objects are to favor the discovery of new agricultural products; to obtain, at the lowest cost, the best fertilizer and seeds, the best agricultural implements and animals; to increase production; to make labor easier; to diminish the cost of production and of living in the country; to give instruction in agriculture by lectures, tracts, books, etc.; to buy or hire the best agricultural implements and rent them at a low price to members; to facilitate the sale of agricultural products at good prices; to advise on all questions relating to farming; to provide judges and experts for the

settlement of differences that would otherwise go before courts; to offer prizes; to insure men and animals against accident or death and to secure mutual aid, cooperation, loans; and, in general, to cooperate for the amelioration of the condition of agriculture.

The number of farmers' syndicates has increased since 1892 from 863 to 2,067, and the membership from 313,800 in 1893 to 512,794 in 1899. The most notable growth was during the last four years, when the membership rose from 403,261 at the end of 1895 to 512,794 in 1898-99. It is believed that in a few years every farmer in France will be a member of a syndicate.

In answer to my question, "What are the advantages of a syndicate?" addressed to the secretary, Mr. Jean Raulin, he said:

They are of two kinds: (1) They contribute to the defense of the rights and to the material interests of the farmers; (2) they support and make known the political rights of the farmers and secure respect for them.

Among the material interests, he mentioned the buying of fertilizers and implements at wholesale prices, the securing of cheap transportation, the sale of products in the best markets and at a time to get the best prices.

Among the political advantages, it was mentioned that the power of association permitted the farmers to exert an influence upon legislation, favorable or unfavorable, as it might affect their interests.

These syndicates have succeeded in protecting French farmers by securing a high protective tariff on foreign farm products; they have also induced the Government to create agricultural warrants and neighborhood banks of loan and deposit.

The agricultural-warrant system, which permits the farmer to draw on the nearest bank for his crop, has thus far proved impracticable.

By combining in syndicates, the science of agriculture is placed more completely within reach of the poorest farmer, and practical, everyday experience is brought into cooperation therewith. Farmers and students derive mutual instruction. Scientific ideas of farming are brought to the attention of farmers by lectures delivered by the professors of agriculture and by articles published in the organs of the syndicates and in almanacs. The syndicate also establishes boards of arbitration for the deciding of questions in litigation, at comparatively no expense or loss of time.

The syndicates are neutral, absolutely shut out from all influence of political parties. No instance is yet known where an agricultural syndicate has been made use of by a political party or by a candidate for office. The farmers are emphatically of the opinion that the usefulness of their organizations would be greatly impaired, if not entirely destroyed, if politicians were permitted to use them.

There has not been, since the organization of these syndicates, a political movement among the farmers in France.

The syndicates have united the great landowners and the farm hands of the country, which has been productive of good feeling and common interest. The one class has thus become better acquainted with the other. The first has learned to place more confidence in the second, has become more identified with its interests, and has not hesitated to advance funds when needed. In the Department of the Beaujolais, some landowners have settled an income of 100 francs (\$19.30) per year upon their old farm hands. Some of the wealthiest nobles in France are members of syndicates.

A community of interests has been created, in which the business experience and ability of landowners have been enlisted to establish an insurance fund for farm animals and employees, buildings, crops, etc. From this starting point were organized the cooperative societies for the sale of crops, fruits, vegetables, poultry, dairy products, etc. This cooperation has stopped the cutting of prices, and ruinous competition has ceased. A representative of the syndicates sells for all its members.

"Under the operation of this principle of mutuality," said Mr. Raulin to me, "we have noted the progress of agriculture, thanks to intelligent and profound studies of agricultural interests by the proprietors and to the practical application thereof to the interests of their tenants and employees. All are bound together by a common interest, from which cooperative and mutual insurance companies have arisen."

The syndicates have united the wealthy farmers and landowners with the poorer ones. In the Union of the Southeast, headquarters in this city, out of 61,282 members, 7,808 are capitalists—men who can, if they please, live on their incomes—while the 53,474 are employees or small farmers. The poorer classes seek the advice and cooperation of capitalists, bankers, and any other successful business men.

It is believed that these syndicates have created an insurmountable barrier to the triumph of socialism.

I have attended meetings of these syndicates where I saw representatives of the most aristocratic families of the old nobility of France seated beside produce commission merchants, dealers in agricultural implements, wealthy landowners, public officials, nobles, bankers, laborers, and the managers of large estates. All were planning to advance the interests of agriculture. The farmers, who generally feel that they are lacking in business experience and tact, manifest a strong disposition to leave the management of their interests to some banker or well-known business man who is accustomed

to the handling of large interests. The tendency of the syndicate is to destroy class distinction.

SPECIAL ACTS OF THE SYNDICATES.

The syndicates all enjoy absolute liberty of initiative and action. Some have fixed a market day for a special product. One has established a fair for the exhibition of certain products. Another syndicate has devoted all its energies to the sale of green pease. It obtained low freight rates, entered the largest market, and enabled the producers in Villeneuve-du-Lot to pay for their lands \$100 per acre in one season. The farmers brought all their products to one common center, where they were transported in one train of cars to Paris. The expense of the freight and sales amounted to 2 per cent of the gross receipts. In 1898, one syndicate sold over \$70,000 of products.

PARCELS-POST SERVICE USED.

The syndicate organized in Brittany and Normandy makes important sales of table butter and cheese, using the parcels-post system for reaching a large number of customers. Parcels weighing 20 pounds or less can be sent by mail for 30 cents to a large number of customers. In the same way, the individual wine grower sends two bottles of his wine by parcels post as a sample, and, if an order is received, a public official certifies that the barrels purchased are the same as the sample.

APRICOTS.

The experience of the apricot growers in the communes of Roquevaire and Lascours is worth speaking of in detail. In former years, the sale of their output hardly paid expenses. Since the apricot men have been placed under the direction of a syndicate, their harvests are all brought to a place agreed upon, where a sales agent takes charge of them. The stones are taken from the fruit by children and are sold for from 6 to 10 francs (\$1.15 to \$1.93) per 100 kilograms (220.46 pounds). During a good season, 25,000 kilograms (55,000 pounds) of stones have been picked from the apricots by one hundred and fifty women and children. The stones are sold to confectioners and manufacturers of sirups. The meat is placed in basins, where it is cleansed and whitened and then packed in 10-pound cans, hermetically sealed. In 1895, the village of Roquevaire sold nearly 1,000,000 pounds of canned apricots, the greater part of which found no market before the sales were placed under the direction of a syndicate. Most of the apricots are sold in Belgium, Holland, England, the United States, and Brazil.

OLIVE OIL.

In the town of Istres, Department of the Bouches-du-Rhône, the olive raisers complained of the bad market for their olive oil, contending that middlemen so adulterated the product that consumers had acquired a distaste for the pure article. Their syndicate bought a cooperative mill, in which pure olive oil is produced, and the farmers are hoping for better prices for their product, notwithstanding the competition of the olive growers of Tunis.

THE SALE OF OTHER FARM PRODUCTS.

The syndicates have been most useful in the sale of all farm products. The one in Romorantin, in the center of France, about 140 miles from Paris, undertook to sell all the vegetables raised by its members. The goods were carted to a given point, weighed, prepared for shipment, and the next morning they were offered for sale in the Halles, the great Paris market. The sales of green beans and asparagus by this syndicate amounted to 25,000 francs (\$4,800) in one year, and the action of the syndicate raised profits 3 per cent in that time. Now, the syndicate has its own agents in Paris at the great market, who have no other business than to sell its products.

To furnish an idea of the purchases of the different syndicates, I quote those made this year by the Union of the Southeast, which has its headquarters here in Lyons:

	Tons.
Fertilizer.....	8, 569
For the use of wine growers.....	1, 485
Seeds.....	58
Fodder for cattle.....	656
Material for building.....	418
Coals.....	2, 620
Total.....	13, 806

This is an increase of 547 tons over the purchases of 1899.

It has been difficult in France, as it has been in the United States during the past twenty-five or thirty years, to prevent the rural population from flocking to the cities. When young men are drafted into the army, much of their barrack life is in or near some large city, where they soon become alienated from the country. Wages are also higher in a city, and the work not so hard. An official of the central bureau of the Lyons syndicate said to me:

It is believed that the influence of the syndicates will be to dignify farm labor and, by the lowering of taxes on farms and the securing of protective tariffs on farm products, to increase the wages and generally improve the condition of farmers. The syndicates will provide an old-age pension fund, and thus, fixing the farmer and his family more permanently to the soil, will prevent the depopulation of the country.

This organization does, in truth, create new bands of attachment among the farm hands, and its tendency is without doubt to bind them more closely to the land they cultivate. Workingmen in France, young or old, in city or country, will not leave a situation which promises them a comfortable pension for old age and which they have partially paid for by their labor, for no people in the world think more of providing for old age than the French. In fact, it is questionable whether the operation of this sentiment is favorable to the development of the best interests of the nation or of the best that is in the people. The fear of incurring obligations which may interfere with the enjoyment of a \$100 income in old age may be one of the reasons for the much-talked-of depopulation of France.

LOCAL FARMERS' LIBRARIES.

Conspicuous in the work of the syndicates is the creation of a library in each locality where a society exists. I noticed in one library a work written by Claude Silvestre, the assistant secretary of the Southeastern Union, whose headquarters is in Lyons. It consists of two fine volumes, and is at once a history of each of the syndicates of the southeast and of the union. This book demonstrates most emphatically the interest taken in this region in giving a complete development to the law of 1884. Two hundred and fifty copies are numbered and printed on light handmade paper, and, while the work brings to the attention of the rustic farmer two volumes that would prove a most acceptable ornament to the library of an accomplished bibliophile, it contains a concise history of the societies thus far organized in this section of France, with a complete guide for future organizations.

This Southeastern Union, which is called the model union of France, comprises 264 syndicates, numbers 70,000 members, and manages the business of the syndicates in ten Departments. Its president—Mr. Emile Duport—is one of the most intelligent and active men in the rural population of France.

MISCELLANEOUS.

Interference in private affairs, which some economic writers denounce as paternalism, is a very conspicuous feature in the Government of France. Its introduction into the body politic synchronized with the social and political changes which were the result of the great revolution of 1789. It was then laid down as a fundamental principle that taxes should fall upon the individual citizen in proportion to his ability to bear them. The direct application of this doctrine is made first among the farmers, because they are believed to bear the bulk of the burden of taxation. If the farmers of a certain district suffer from drought, inundation, or other cause

for which they are not responsible, it is deemed the bounden duty of the Government to come to their rescue. The farmers are generally believed to be less able to fight the battle of life than the manufacturers, merchants, and bankers of the city, and therefore the National Government a few years ago loaned them 40,000,000 francs (\$7,720,000) as a capital from which agricultural banks and insurance companies could be organized. This sum is loaned for five years, but it is believed to be but the beginning of other larger loans. To enjoy the benefit of any of this money, a regional bank must first be established by an agricultural union. This regional bank has the right to 4 francs of the 40,000,000 for every 1 franc that it furnishes toward the capital stock of a bank. This capital stock must come from the small syndicates, whose members receive shares in the bank in proportion to the money they advance to it. This agricultural bank loans money to its members at 3 per cent, and it pays them 4 per cent for their deposits. Last year, the regional bank in this city loaned 189,000 francs (\$36,500) at 3 per cent and received over half that sum in deposits.

The action of the French Government in thus coming to the aid of farmers is in harmony with traditions centuries old. In the old monarchy, under the influence of the great Sully, Turgot, and Colbert, small proprietors, when suffering from damages brought upon them by war, epidemic, storms, drought, or an invasion of insects like the phylloxera, were partially or wholly exempted from taxation. During the great revolution in 1793, the Convention provided by law that all farmers who had "suffered from invasion or the weather or other cause should be recompensed from the public treasury and be exempted from the usual taxes."

Three years ago, a law of Parliament provided for the exemption from taxation of farm lands which before that time had annually yielded an aggregate of over \$5,000,000 of taxes. The exact sum was 25,804,750 francs.

The money derived from the taxes on land in France is divided into two distinct parts, one part going to the State, the other to the eighty-six Departments and the thirty-six thousand communes. The amount for which payment was remitted was the share of the General Government.

The number of landowners in France who own a small piece of land is very large. Over 8,000,000 pay a land tax ranging from 10 to 20 cents, which indicates an annual income of from 10 to 100 francs. Over 3,000,000 pay from 5.01 to 10.01 francs (\$1 to \$2*). Over 2,000,000 pay from 20 to 30 francs (\$4 to \$6*) tax on their land.

This tendency to favor the poor runs through the entire system

* In round numbers.

of taxation in France. In the pending discussion of the proposition to abolish the octroi tax—*i. e.*, the tax imposed at the city gates—and the means to replace the deficit thus made, it is proposed to make every citizen pay a tax of so much per cent upon the amount he pays as rent for his home. The Minister of Finance at Paris, to whom this scheme has been submitted, has proposed that if a man pays over 800 francs rent, he shall be taxed 9 per cent on the entire sum, but if he only pays 800 francs rent, he will be taxed only on 650 francs of that sum; and if his rent is less than 250 francs, he shall be entirely exempted from taxation. This scheme exempts a large number of poor taxpayers and places the burden of making up the deficit caused by the repeal of the octroi duties upon people who pay over 801 francs per year rent.

I refer here to this proposed arrangement, now under consideration in several cities of France, as an illustration of the tendency of the ruling powers here to indulge in paternalistic measures. They are a part of the body politic of the nation.

The office of the Union Central des Syndicates Agricoles is No. 8 rue d'Athènes, Paris, France. I would advise all Americans who have agricultural implements or anything else to sell to farmers to address this central office.

JOHN C. COVERT,
Consul.

LYONS, *February 21, 1901.*

LABOR TROUBLES IN FRANCE.

A strike by the coal miners, planned to be general and to include all the mines in France, is scheduled to take place about the end of June, unless terms are agreed upon before that date, which seems improbable.

Several collieries in the St. Etienne district, notably St. Eloy and Montceau-les-Mines, have been closed by strikes for several weeks, the miners being aided by subscriptions raised by several newspapers and by miners still working in this and in other districts. Some of the mines refused to go on sympathetic strike immediately, because of existing agreements; these will for the most part expire by the date set for the general strike and will not be renewed. Should the proposed strike actually take place, there is likelihood that other trades will join the movement.

Iron workers, furnace men, and machinists are already considering whether this may not be the most opportune moment for presenting their grievances, seeing that if the miners strike, they also will be thrown out of employment by reason of the scarcity of fuel.

The silk and velvet ribbon weavers are also discussing the propriety of striking at the same time, but no final decision has yet been reached.

The strike at Marseilles Harbor seems to be only a manifestation of the restlessness of the workmen existing throughout France. During the winter, the retail price of coal was so high that the Government was appealed to to reduce the duties on foreign coal, but no reduction has been made. However, should the domestic supply be further curtailed and prices advanced by reason of another strike, it is not improbable that on the renewal of demands the Government will take measures to facilitate the importation of coal by reducing the present duties and railway freight rates.

HILARY S. BRUNOT,

ST. ETIENNE, *March 20, 1901.*

Consul.

LACE MAKERS' STRIKE IN FRANCE.

A stubborn strike on the part of the lace makers has just terminated. During eighty-seven days, this strike has been in existence, and it has been most bitter in its character and injurious to Calais in its consequences. During this long period, the strikers received their sustenance from labor unions, principally in England. The weaker manufacturers, on the other hand, were sustained by the stronger, and thus the manufacture of machine-made lace in Calais has been at a standstill. American orders for goods have been filled from the stock on hand or have gone unfilled. The manufacturers number about four hundred.

The strike grew out of the application of a new labor law, Calais having been chosen as the place to test it. It has resulted in victory for the manufacturers and much hardship for the strikers and their families, while the provisions of the new law will be left to the courts for interpretation.

I have made diligent effort to discover where the real justice of the contention lay, but without much avail. The application of the law seemed impracticable in the lace industry, and coupled with the effort to apply it was also the object to increase the wages of the workmen. On the part of the patrons, it was contended that the lace makers were and have been paid the best wages that are received by workmen in France, while the workmen have denied this. I have tried in vain to find out what the workmen actually received; even the wives of the makers in many cases are ignorant of this matter.

There are about 2,000 lace machines in Calais, and at this writing

about 1,400 are in operation. Two weeks ago, only 400 machines were running. The industry has been gradually resuming for a month past, but not until yesterday was the strike officially declared off by the makers' union.

J. B. MILNER,
Consul.

CALAIS, February 9, 1901.

PRESENT CONDITION OF THE COAL MARKET IN FRANCE.

Numerous letters are received at this consulate from coal dealers in the United States asking if there is a possibility, at the present time, of finding an outlet in France for the sale of American coal.

Owing to the decided fall which has taken place in the prices of British coal during the past four months and the low freights now prevailing between British ports and those of France, the conditions are not favorable for the American coal exporter. The lowest price I have heard quoted for American steam coal, run of the mines, alongside of the wharf at Havre is 24s. (\$5.83) per ton.

The wholesale prices of British coal, f. o. b. shipping ports per ton of 2,240 pounds, which were ruling February 12 last and have not materially changed since were as follows:

Description.	Large colliery screened.		Run of mines.	
	s.	d.	s.	d.
Best Cardiff.....	18	0	12	3
Best Newport.....	16	6	11	6
Best Northumbrian.....	12	0	8	9
Best Scotch.....	11	0	9	6

The above prices are subject to a discount of $2\frac{1}{2}$ per cent for payment within thirty days, with the exception of those for Scotch coals, which are net.

The average freight rates from British shipping ports to Havre and Marseilles are as follows:

From—	To—			
	Havre.		Marseilles.	
	s.	d.	Francs.	
Cardiff and Newport.....	4	0	8.50	\$1.64
Newcastle	3	10	7 6	1.82
Scotch ports.....	4	6	7 6	1.82

These rates are subject to a discount of 2 per cent for cash.

The bulk of the American steam coal which has been received in France was unscreened, just as it came from the mines. This quality of coal would therefore have to be sold in competition with best Cardiff coal (unscreened), run of the mines, which at present can be delivered alongside of the wharf at Havre for 16s. 3d. (\$3.95) per ton. If this price be compared with that of the American coal—24s. (\$5.83)—there would be a difference of 7s. 9d. (\$1.88) in favor of the British coal. If the comparison were made with the prices of English and Scotch coal, the difference would be still greater. Under these conditions, it would be difficult at this time to place orders for American coal in the northern part of France.

France, during the year 1900, imported 14,335,740 metric tons (2,204.6 pounds) of coal, of which 8,601,410 tons were supplied by Great Britain. The French customs statistics do not specify the number of tons imported from the United States; but, according to the United States Treasury statistics, during the first ten months of 1900, 149,950 tons of American coal were exported to France, an increase of 148,938 tons as compared with the corresponding period of 1899.

Outlets for the sale of American coal can only be found in those districts of France which are now being supplied with British coal, as the high cost of railroad transportation from the receiving ports would prevent either the British or American coal entering into competition with German, Belgian, and native coal in regions in which the latter combustibles are being used.

The question arises, whether the coal exporters of the United States can solve the problem of delivering their coal in European ports as cheaply as their British competitors, and thus share in a lucrative and permanent trade, which in France alone amounts yearly to over 8,500,000 tons. It is a recognized fact that with the improved methods of mining, handling, and loading coal now being used in the United States, and the cheap railroad rates from the mines to the seaboard, American coal can be delivered on board vessels at the various shipping ports much more cheaply than the British coal exporters can load their coal. This advantage in favor of the American exporter is more than counterbalanced by the increased ocean freight rates he has to pay in delivering his product in European waters. His greatest handicap, therefore, is the high cost of ocean transportation under conditions as they now exist.

The problem of carrying coal cheaply on the inland waters of our own country has been successfully solved. I have been told that coal can be transported 1,000 miles on the American lakes for 20 cents a ton. It remains, therefore, for our coal exporters to create lines of American vessels, either sail or steam, which, being built

with the view of reducing expenses to a minimum, will be able to deliver coal in continental ports at rates which will enable it to compete in European markets with that from Great Britain. This is the key to the position.

There will be little to fear about the quality of our coal. There may be some trouble at first in overcoming the European prejudice against the large percentage of fine coal in American cargoes, but this can be removed. Recently, one of the French railway companies, which had imported American coal for use in its locomotives, complained that there was so much dust in the coal that sufficient pressure of steam could not be raised in the boilers to run their trains. The European agents of the American company which had supplied the coal sent one of their practical men to investigate. He found that the French engineers, being unfamiliar with American coal, were not using it properly. He showed them how to handle the coal, and, much to the delight of the Frenchmen, they succeeded in getting more steam from it than they had ever been able to do with the coal to which they had been accustomed.

One of the foreign representatives of an important American coal company, engaged in the export trade, informed me recently that he went to the United States for the purpose of visiting some of our coal mines to investigate whether he could get good steam coal which would satisfy the demands of his trade for large pieces. After seeing fifteen mines, he found one in West Virginia which he said would produce good bituminous steam coal which he would guarantee could be landed in European ports in cargoes which would run at least 75 per cent large pieces, if ordinary care were taken in handling it.

During the past eight months, four cargoes of American coal, amounting to 19,000 tons, were received in the port of Havre. This quantity was all the United States contributed to a total importation of 875,646 tons, the balance having been sent from Great Britain. The American coal was imported for the use of the Western Railway of France and for an important French navigation company—the Chargeurs Réunis. Although the cargoes did not average over 35 per cent large pieces, all the reports I have received in reference to the efficiency of the coal were satisfactory.

Even if the obstacle of high cost of ocean transportation be surmounted, the American exporters must realize that they must be well represented abroad. They will come in direct competition with the British coal exporters, whose export-trade organization is almost perfect. The latter make contracts in London for supplying coal in all parts of the world. Their representatives, who may be found in all coal-consuming countries, are keen to take advantage of any open sales in their districts; they keep their head offices

posted as to any large contracts which are about to be placed, and they quote the lowest prices to dealers and consumers without having to allow for numerous commissions to middlemen.

Whether it be coal or any other product, in order to properly exploit their wares abroad, American exporters must study the requirements of foreign trade and perfect the organization of their export business, as has already been done by their German and English competitors.

A. M. THACKARA,

HAVRE, *March 7, 1901.*

Consul.

COAL, IRON, AND STEEL PRODUCTION OF FRANCE.

Referring to the statistics of the production of coal, iron, and steel in France for the first six months of the years 1899 and 1900, as given in a report from this consulate under date of October 3, 1900,* I quote from a statement by the Minister of Public Works, published in the *Journal Officiel* of March 13, showing the results of the second six months of 1899 and 1900. Although the figures for the year 1900 are provisional, they are sufficiently accurate to enable one to make an intelligent estimate of the quantity of coal, lignite, iron, and steel produced in France during the years 1899 and 1900.

COAL.

The production of anthracite and bituminous coal for the year 1900 was 32,587,179 metric tons (of 2,204.6 pounds each), as compared with 32,256,148 tons during the same period of 1899, an increase of 331,031 tons; that of lignite, 683,206 tons, compared with 606,564 tons in 1899, an increase of 76,642 tons; making a total production of mineral combustibles for the year 1900 of 33,270,385 tons, as compared with a production of 32,862,712 tons in 1899, an increase of 407,673 tons for the year 1900, as shown in the following table:.

Coal and lignite production of France for the years 1899 and 1900.

Description.	1900.	1899.	Increase in 1900.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Anthracite and bituminous.....	32,587,179	32,256,148	331,031
Lignite.....	683,206	606,564	76,642
Total.....	33,270,385	32,862,712	407,673

* Published in *ADVANCE SHEETS OF CONSULAR REPORTS* No. 872 (October 29, 1900) and in *CONSULAR REPORTS* No. 244 (January, 1900).

Imports, exports, and consumption of coal in 1899 and 1900.

Description.	1900.	1899.
	Tons.	Tons.
Importations of coal into France (commerce général).....	14,335,740	11,658,919
Production of coal and lignite.....	33,270,385	32,862,712
Total.....	47,606,125	44,521,631
Exports of coal from France.....	2,409,430	2,466,932
Net production and imports.....	45,196,695	42,054,699
Stock on hand in Government warehouses at the end of December.....	2,051,766	1,478,335
Consumption.....	43,144,926	40,576,364
Increase.....	2,568,562	

From the foregoing, it will be seen that the consumption of coal and lignite in France during the year 1900 was over 43,000,000 tons, an increase of 2,500,000 tons as compared with 1899.

Of the amount of coal imported into France, 8,600,000 tons were brought from Great Britain alone. This is the trade in which American miners and shippers of coal can hope to share, if they can solve the question of securing cheaper ocean-transportation rates to the French coal-receiving ports.

IRON.

The production of pig iron in France during 1900 was 2,699,494 tons, an increase of 121,093 tons as compared with that of 1899.

The production of iron rails, sheet iron, etc., in 1900 amounted to 745,312 tons, a net decrease of 88,544 tons in comparison with 1899.

Production of pig iron for the years 1899 and 1900.

Description.	1900.	1899.	Increase.
	Tons.	Tons.	Tons.
Refined iron (fontes d'affinage).....	2,159,461	2,065,937	93,524
Pig iron, first fusion.....	540,033	512,464	27,569
Total.....	2,699,494	2,578,401	121,093

Production of iron rails, sheet iron, etc., in 1899 and 1900.

Description.	1900.	1899.	Increase.	Decrease.
	Tons.	Tons.	Tons.	Tons.
Rails.....	621	609	12	
Commercial iron.....	680,735	736,386		55,651
Sheet iron.....	63,956	96,861		32,905
Total.....	745,312	833,856	12	88,544

During the year 1900, there were 295,915 tons of steel rails manufactured in France, which was an increase of 40,249 tons, as compared with the steel-rail production of 1899. The production of

sheet steel also showed an increase, being 301,651 tons, as compared with 278,690 tons in 1899.

STEEL.

There were 38,133 tons less of commercial steel manufactured in 1900 than in 1899, the production of the two years being 667,171 tons and 705,304 tons, respectively. In the following table are shown the details of French steel production for the last two years:

Production of steel for the years 1899 and 1900.

Description.	1900.	1899.
<i>Rails.</i>		
Bessemer	Tons. 288,818	Tons. 250,795
Siemens-Marture	7,097	4,878
Total	295,915	255,666
Increase	40,249	
<i>Commercial steel.</i>		
Bessemer	310,726	412,697
Siemens-Marture	324,113	265,201
Puddled or forged	7,880	6,603
Tool steel	947	1,516
Crucible	16,360	16,825
From scrap steel	7,136	2,372
Total	667,171	705,304
Decrease	38,133	
<i>Sheet steel.</i>		
Bessemer	67,458	68,582
Siemens-Marture	240,455	205,708
Others	3,738	4,400
Total	301,651	278,690
Increase	22,961	
<i>Résumé.</i>		
Rails	295,915	255,666
Commercial steel	667,171	705,304
Sheet steel	301,651	278,690
Total production	1,264,737	1,239,660
Increase	25,077	

A. M. THACKARA,

HAVRE, March 14, 1901.

Consul.

FRENCH MILITARY COLONIZATION.

General Gallieni, the military governor of Madagascar, is making successful efforts in military colonization in that island. Heretofore, somewhat similar experiments had been tried in other colonies, but they did not respond to the expectations. For instance, soldiers who had finished their service in the colonies were encouraged to settle there, certain facilities being accorded to them on the condition that they remained grouped in assigned villages and more or

less under military discipline. Thus the soldier, becoming a colonist, recovered only a portion of his independence, and the offers were not for the most part considered acceptable by the soldiers, who preferred to return to their native country.

General Gallieni has put into practice another method, which bids fair to succeed. He does not address himself to liberated soldiers, but to those who are yet in their third and last year of service; neither does he require the creation of villages where rural and domestic work would be regulated to the sound of the drum. He endeavors to fix on the soil men inspired by the sentiment of their responsibility and that of their personal interest.

The soldier desirous of remaining in the colony and presenting the usual guaranties receives a concession of land in his third year of service and is obliged to commence forthwith the exploitation of the lot given him. During the two years he has already passed in the island, he has acquired a certain amount of experience as to the natives of the district in which he has resided, the nature of the soil and its resources, while he has made himself more or less familiar with the language. The concession he has taken has not been imposed on him; he has chosen it himself, and he will work it in the manner he thinks best. During the first year, at least, he has not to trouble himself with the absolute necessities of life, as, being still a soldier, the State feeds and clothes him. Further, the Government provides him with some agricultural implements and a few head of cattle. If the military colonist fulfills expectations in his work, he is lent a little money at long credit and without interest; if, on the contrary, he proves himself unworthy, the concession is taken from him and he returns to the ranks.

Such is the system initiated by General Gallieni in Madagascar. Already, over fifty soldier colonists are in possession of their concessions and are in a fair way of becoming independent and useful members of the community. A brief history of one of them will suffice for all.

Corporal B received a concession of 250 acres in 1898 and commenced by planting potatoes, which at the end of the year brought him \$300. The following year he built stables for his cattle, sheep, and goats and constructed a baking oven. His kitchen garden furnished him with all the vegetables necessary for his own consumption, and the surplus he sold on the markets. In that year, he was visited by a general en passant, who was so pleased with his inspection that he gave him \$200, which was immediately employed in increasing his number of cattle. At the close of the year, he wrote to his colonel to say that he had put 25 acres under rice, a crop expected to give a return of \$2,000. A short time ago, he sent in

an inventory showing the value of his tenement, cattle, etc., which amounted to nearly \$4,000.

Encouraged by the above results, it is probable that the governor of Madagascar will give considerable extension to this system of colonization.

HILARY S. BRUNOT,

ST. ETIENNE, *March 14, 1901.*

Consul.

MARKET FOR AMERICAN LUMBER IN FRANCE.

Under date of February 27, 1901, Consul Skinner, of Marseilles, reports as follows upon the demand for walnut logs in France:

A scarcity of walnut logs for the manufacture of furniture is reported to me by dealers in this city, who express a wish to get in touch with American firms able to supply both light and dark colored walnut. All kinds of exotic wood in logs are admitted free of duty; squared lumber is dutiable at the rate of 24 cents per 220 pounds. While walnut is the timber most in demand and the most difficult to obtain, there is also an opportunity to dispose of ebony and mahogany, if American firms are at present prepared to export these woods from our colonial possessions.

The walnut logs should not be less than 14 inches in diameter, nor less than 9 feet in length. Sawed lumber should be at least 1 inch thick and preferably thicker. The buyers desire a timber that is handsomely veined and free from blemishes. Present prices are about \$19.30 per 1.308 cubic yards for logs and \$24.12 per 1.308 cubic yards for sawed lumber. While it is desirable that American firms quote c. i. f. prices, this is not imperative if f. o. b. prices at Baltimore, New York, or New Orleans are named. There is frequent direct steamship communication between the three ports named and Marseilles, and there is also a line of Italian sailing ships from Pensacola. The most frequent sailings from New York to Marseilles are those of the Cyprien Fabre Company and of the Anchor Line.

The Lapalud Company, 183 rue Ferrari, manufacturers of furniture, claim to be able to absorb over 2,000 cubic meters themselves and believe that there is an opening for an extensive business with other local firms and cities in the interior. In addition to the firm named, the other resident buyers who might be interested in receiving quotations are:

Alexander Facio, 2 Place du 4 Septembre.

Bonifay & Galibert, 118 Boulevard National.

Reg Miallon, 81 rue Chateau Payan.

The above make a specialty of exotic woods.

C. G. Bergman, 53 rue Grignan, and A. Sylvander, 15 Cours du Chapitre, are extensive buyers of American pitch pine and might perhaps do something in walnut if advantageous propositions were made to them.

I would suggest that American exporters place themselves in direct communication with one or more of the foregoing firms, and I shall be happy to facilitate the opening of business relations in any way within my power.

The following are extracts from a letter from Consul Skinner, dated February 27, 1901, in answer to the inquiry of a New York firm* relative to the pitch-pine trade of that city:

All of the American pine imported at Marseilles is purchased from London middlemen. I have had occasion to investigate this matter, and discover that the occasional efforts made in this city to buy direct have been extremely unsatisfactory. Justly or unjustly, the local buyers attribute to the actual exporters in the United States an unwillingness to conform strictly to contract specifications, both as respects quality of wood and agreement as to terms. It is pretended that the American firms, as a rule, have very limited capital, and, as the average cargoes received in Marseilles are worth about \$20,000, the resident buyers prefer to take no risks and to lose something like 3 per cent, which is absorbed by British middlemen; hence all business is done by that indirect method.

The firms of Price & Pierce, 27 Clement's Lane, London, and Tajart Beaton & Co., 2 Great Winchester street, London, are reported to me to be the actual importers of fully 80 per cent of all the American lumber shipped to England and the Continent. These two houses send their representatives into the Florida and other pine regions, who supervise every detail preceding the actual departure of the lumber for its final destination. Having practically unlimited capital, they advance money on as much as a year's or even two years' time to the American millers, and assume responsibility for satisfactory delivery to the Marseilles buyer. The American exporters send their representatives to Europe annually, but they visit the trade with the agents of the two British firms. The operation as I have described it has been conducted for so long a time and with results so satisfactory to the European buyers that in Marseilles, at least, propositions for direct sales are very skeptically received, in spite of the obvious advantages of such a method. The local firms with which the Marseilles brokers do business would prefer to be freed from the present obligation of dealing with the

* To which the original was sent.

London concerns, but the brokers insist that they can afford to take no chances.

I am free to say that the system as it exists is irrational, but it will require persistent and well-directed effort on the part of our exporters to divert from London to the United States a business which has been built up with great pains and rests upon a broad foundation of mutual confidence and esteem.

What is true of the lumber trade is also more or less true of many other commercial lines, and I think it would surprise a great many American business men if they could realize the extent to which they are dependent upon British middlemen for their foreign trade. Exports are made direct to buyers from many American ports, and casual inspection of shipping manifests would indicate that this business is controlled in all its details by the American seller; but when the facts are investigated, it more frequently than not is shown that the actual negotiation is intrusted to important British or continental firms, which are thus in a position to swing the trade from the United States to any other exporting country the moment conditions seem favorable for such a diversion.

The growing tendency of our people to establish themselves abroad and cut off commissions and to operate directly is one that can not be too strongly encouraged, and I know of no branch of our business in which efforts along these lines would be more appropriate than in our lumber trade.

DEMAND FOR AMERICAN SHOES IN FRANCE.

I have been requested by Gabriel Bisellach, Abonné No. 11, Bureau Central, Marseilles, to procure for him the addresses of United States manufacturers of boots and shoes who are desirous of extending their trade to France. Similar information would interest A. Heymann, 54 rue St. Jacques, Marseilles. These gentlemen are agents familiar with local conditions and desire to engage in business on a commission basis. Prices should be quoted c. i. f., if possible.

In connection with this matter, I desire to say that complaint is frequently made at this consulate that American manufacturers are too much disposed to establish central agencies at Paris and to rely upon them to cover the entire French field. The result is that the Parisians are frequently unable to do justice to their great extent of territory and are under the necessity of increasing their prices to such an extent as to interfere with successful competition in the provincial cities. Shoes imported at Paris, for example, must be sent by rail from Havre to that city, repacked, and forwarded again

by rail to the ultimate buyer. In many cases, the local freight charges exceed the cost of transportation from New York to France. Marseilles, being a seaport city with frequent means of direct communication with New York, offers every facility for the transaction of business between buyer and seller and is itself an exporting port for the entire Mediterranean field.

Up to the present time, practically no effort has been made to dispose of American boots and shoes as such in this city, although various retail shopkeepers sell British foot gear, and latterly a lively trade has been created between Marseilles and the Balearic Islands. I know of but one retail dealer who advertises American shoes. This merchant, while proclaiming in large letters that American foot wear may be found within, is temporarily without anything of the sort. He was induced to undertake the sale of American shoes in consequence of frequent applications for them, probably on the part of the many tourists who pass through the city. He purchased a small line of men's shoes from a Paris agency and has had good success in disposing of them at 25 francs (\$4.82) per pair. The only unfavorable criticism offered at this shop is that the American shoes had too much of a curve in the instep; that the sole of the instep pressed against the foot. Models with the almost straight sole he sold rapidly, and finally disposed of the others. His experiment having succeeded, and the words "American shoes" advertised in his windows having proved attractive to customers, he has concluded to purchase again, and may perhaps add a line of women's shoes.

These circumstances, while very trifling in themselves, indicate that there is a nascent interest in this line of American merchandise, and that an experiment having succeeded on a small scale, might readily be pushed to success in a very much larger way.

The French tariff imposed on American foot wear is 48 cents per pair on boots for men and women, and 19.03 cents per pair on low shoes and slippers. While these rates are higher by about 10 cents per pair than those on similar merchandise imported from most European countries, the difference, I think, may easily be overcome by our manufacturers.

If serious attempt is made to build up a boot and shoe trade in France, I trust that a special effort will be made to push high-class goods. There is at present no lack of cheap and clumsy goods, and the success of our people will finally rest upon their reputation for the production of comfortable, stylish, and finely finished shoes. Up to this time, France has been rather behind Great Britain and Germany in importing this class of merchandise from the United States, partly because French buyers are accustomed to having their boots made to order, partly because French shoes, and especially

ladies' boots, are rather better than similar manufactures of other European countries, and partly because of the differential tariff which our manufacturers must pay. These impediments to trade are not sufficiently strong, however, either singly or combined, to stand in the way of success if our manufacturers are disposed to make the effort.

I give below a number of addresses of local retail dealers. It should be added, however, that these merchants can not be successfully reached by the mere forwarding of printed matter, even though it be in the French language. It will be necessary for commercial travelers or resident agents to approach them with samples and a full knowledge of all the facts.

J. A. Aboudy, Cours Belsunce, 39.

Vve. J. Belaiche, rue de Rome, 86.

J. H. Bonifait, rue de l'Académie, 16.

J. Casseli, Grand' rue 78.

Raoul Chaussures, rue St. Ferreol, 41.

Paul Clottes, rue Grignan, 5.

Aug. Desloyal, rue Noailles, 3.

Vve. Féraud, rue Parddis, 118.

P. Girard, rue St. Cécile, 15.

Manfield et fils, rue St. Ferreol, 17.

Vve. Rocca, rue de la République, 58.

Mme. Roche, Grand' rue, 92.

J. B. Roubaud, rue St. Cécile, 16.

Félix Séban, Grand rue, 20.

François Troin, Vieux Chemin de Rome, 85.

Elie Tubiana, rue de l'Académie, 11a and 30.

J. Volpiatte, rue Curiol, 90.

ROBERT P. SKINNER,

MARSEILLES, *March 8, 1901.*

Consul.

AMERICAN SHOES IN THE NETHERLANDS.

There is now only one firm in Amsterdam selling American boots and shoes. Dealers give the following reasons for this:

(1) It is often very difficult for dealers here to explain to American manufacturers what models they want; hence they often get shoes which are not in demand.

(2) Most dealers do not order more than 2 or 3 dozen pairs of shoes at a time, orders which are not worth the trouble for large manufacturers in the United States to fill.

(3) Freights are rather high.

(4) On account of distance, claims are very difficult to settle.

(5) It often occurs that, during the voyage, shoes are stolen. Both the steamship company and the manufacturer are unwilling to bear this loss, while German and Dutch manufacturers always send shoes to make up the loss.

(6) Goods delivered are often not up to sample.

(7) American manufacturers prefer for cash to accompany all orders, or to have sight draft against bill of lading, while continental manufacturers give credit of three to six months.

The best way to do business in American shoes would be to establish a branch house here with sufficient stock of all kinds on hand, so that retail dealers could buy small quantities at a time.

Mr. A. H. Van Gelder, of 118 O. Z. Achterburgwal, Amsterdam, writes this office, under date of March 12, 1901, concerning American boots and shoes in the Netherlands and Switzerland, in both of which countries he does business in those articles, as follows:

Dutch manufacturers in the last few years have made much progress by the use of improved machinery (Goodyear machines), also in hand-sewn goods, and now make a good boot for men and women at a reasonable price. Shopkeepers are spoiled through competition. In general, high prices are not paid here for machine-made boots and shoes, and \$3 is considered a high price for a pair of ladies' boots. Those wishing expensive boots have them made to order. I like American goods very much, but ladies' boots are too high in price. I have sold goods here for from \$2.50 to \$3; but this leaves no profit to the shopkeepers, besides having to compete with goods made in Germany, Belgium, and France. Business is to be done in grades selling here from \$1 to \$2, thus leaving a profit for the shopkeeper.

American shapes are all right, except that the widths required are C, D, E; broad feet and low insteps prevailing here. There should be a stock kept in the few leading lines, since it takes too long to get a reassortment from the United States.

The above remarks relate to both men's and ladies' shoes and boots. In men's boots and shoes, business is to be done in a few lines, box calf, wax calf, glacé kid, cold glacé kid, colored calf, and colored box-calf boots ranging in price from \$1 to \$2.25.

My experience in introducing American shoes in Switzerland has shown me that there is an opening for American goods in that country. A few Swiss shopkeepers have already taken up American goods and sell not only cheap grades from \$1.50 to \$2, but more at \$2.50 or \$3, especially in glacé kid, black and colored, box calf, black and colored, and wax calf, of good quality.

A fact of great interest is the very narrow difference between the price of a shoe or boot, being only 25 cents in grades that sell at from \$2.50 to \$2.75, this working to the advantage of continental goods by about 40 per cent.

Boots and shoes are much more largely manufactured in Switzerland than in Holland; Bally Sons, of Schoenewerd, alone employing 4,000 men and exporting goods to all parts of the world. In order to close the Swiss market to American goods, these makers have combined and sent a petition to their Government to raise the duty on goods imported from the United States from 60 francs (\$11.58) to 130 francs (\$25.09) per 100 kilograms (220.46 pounds), duty levied on gross weight, packing, wooden cases, and boxes included; whereas the duty at Dutch ports is only 5 per cent ad valorem.

American shapes are all right for the Swiss market.

American manufacturers must pay special attention to the sewing of the soles of boots, people on the Continent preferring the English channel to that made as in the United States. The buyer being used to the English sewing, considers all other styles inferior.

FRANK D. HILL,

AMSTERDAM, *March 16, 1901.*

Consul.

BICYCLES IN THE NETHERLANDS.

Only such American machines as the Cleveland, Rambler, Columbia, etc., are regularly sold. People have no confidence in machines that sell at less than \$40 here.

The trouble with all American bicycles is said to be that (1) the factories are too far away, while American sundries are different from European sundries, the consequence being that dealers have to keep in stock a great number of the former, or their customers must wait until the pieces come from the United States, which often takes six weeks or longer; (2) freights are always very high for small sundries, but this will now be improved by the parcel post; (3) most American machines are delivered with single-tube tires, which are not popular here, so that the merchants have to buy double-tube tires at prices ranging from \$8 to \$12, while the manufacturer makes a reduction of only \$5 for the single tubes; (4) American manufacturers prefer sight draft against bill of lading, while European manufacturers give credits of from three to six months, the result being that during last season more German bicycles were sold here than cheaper American grades.

Of European machines the most sold are English (Humber, Raleigh, Rover, Triumph, Osmond) and Dutch (Hinde, Fongers, and Simplex).

Prices for the next season are:

First-class machines.....	\$60 to \$80
Second-class machines.....	40 to 60
Chainless machines.....	80 to 100

Chainless machines, as well as bicycles with free wheel, are not popular here.

Bicycles are dutiable at 5 per cent.

FRANK D. HILL,

AMSTERDAM, *March 15, 1901.*

Consul.

NEW CLASSIFICATIONS UNDER THE GERMAN TARIFF.

The attention of American exporters of manufactured merchandise to Germany is invited to the following recent decisions of the Imperial German customs authorities, changing the classification and rates of duty per 100 kilograms (220.46 pounds) on certain specified articles:

Can openers are now classified as tools, dutiable at \$2.38 per 100 kilograms.

Ice chests, classified as furniture, dutiable at \$2.38 per 100 kilograms.

Mouse and rat traps, hitherto \$2.38, now dutiable at \$5.71 per 100 kilograms.

Hay and manure forks, hitherto \$2.38, now dutiable at \$5.71 per 100 kilograms.

Vegetable cutters, hitherto \$2.38, now dutiable at \$5.71 per 100 kilograms.

In respect to the last two items, it should be stated that the change of classification is based on the fact that the handles of the forks and knives are covered with an opaque paint. The German tariff is peculiar in this respect, viz, that all fine ornamentation and decoration is liable to advance the grade and thereby increase the rate of tariff. Upholstering, however plain or limited in quantity, greatly increases the duty on a vehicle. An instance is related wherein the import duty on an office safe from a Boston maker was doubled by the fact that the door was decorated with a small decalcomania marine picture, which raised the whole thing to the grade of decorated steel manufactures.

The principle is general that the goods intended for export to Germany should bear no unnecessary outward decoration and that the handles of forks, shovels, and mechanics' tools should be merely varnished or covered with transparent oil finish.

FRANK H. MASON,

BERLIN, *March 25, 1901.*

Consul-General.

GERMAN VS. AMERICAN PAPER.

According to the German press, it appears that almost all branches of German industries are using their influence to procure an increase in the tariff rates.

The demands of the German paper manufacturers for a higher tariff have recently become very loud. Not satisfied with raising

prices for printing paper 25 to 40 per cent, forming a trust, and making their selling terms rather harsh, they now also demand more protection.

At present, the customs tariff divides imported paper into three classes and imposes duties thereon as follows: (1) Ordinary packing paper, 1 mark per 100 kilograms (23.8 cents per 220 pounds); (2) printing and similar paper, 6 marks per 100 kilograms (\$1.43 per 220 pounds); (3) fine paper, 10 marks per 100 kilograms (\$2.38 per 220 pounds).

It is the desire of the paper manufacturers to have the tariff now in course of preparation divide all imported paper into two classes, of which the first class is to embrace all ordinary packing paper, at a duty of 4 marks (95 cents) in place of 1 mark (23.8 cents) per 100 kilograms (220 pounds) as heretofore, and the second class to embrace "all other paper" and be subject to a duty of 10 marks per 100 kilograms (\$2.38 per 220 pounds).

The manufacturers' reason for demanding so high a tariff is, as they say, their fear of American competition. They claim that if a high protective tariff is not established, the United States will ruin the German paper industry, as new paper factories are being constantly built in the United States and before long that Republic will simply flood the German paper market, especially as its manufacturers have greater resources, as regards raw material, than the Germans, and are therefore able to produce more cheaply.

A German journal, in reply to the above assertions of the German paper manufacturers, fails to comprehend their terror with regard to American competition. Granting the better facilities of American manufacturers, this journal claims that the advantage is more than balanced by the expenses of freight and the present import duty. The article goes on to say that even several years ago, when paper prices were exceedingly low in the United States, American manufacturers were not able to compete with the German paper manufacturers. At that time, American printing paper was sold at 18 to 19 pfennigs per kilogram (4.28 to 4.52 cents per 2.2 pounds) c. i. f. Hamburg. Adding the duty of 6 pfennigs per kilogram (1.43 cents per 2.2 pounds) brought the price of American paper at Hamburg up to 24 or 25 pfennigs per kilogram (5.71 or 5.95 cents per 2.2 pounds), or to 27 or 28 pfennigs (6.43 or 6.66 cents) in the interior, whereas the German manufacturers delivered throughout the country at 21 to 22 pfennigs (5 to 5.24 cents per 2.2 pounds). In the face of this, it can not be contended that American competition forced prices down. Furthermore, the fact must be taken into consideration that the above prices were the lowest that ever obtained in the United States, and it is extremely improbable that they will ever be repeated, as both wages and cost of raw material have

increased there. Then again, the American paper manufacturers have combined to guard their interests, and to-day they do not furnish printing paper below 25 pfennigs (5.95 cents) c. i. f. Germany.

The journal adds that if the demands of the German paper manufacturers were acceded to, it is obvious that the prices for German paper would be increased enormously, for then American paper would cost approximately, c. i. f. Hamburg, 25 pfennigs per kilogram (5.95 cents per 2.2 pounds), plus 10 pfennigs (2.38 cents) duty and 3 pfennigs (0.714 cent) freight to the interior, and expenses would bring the price of American paper to 38 pfennigs (9.04 cents) per kilogram.

It seems clear that the German manufacturers would profit by these conditions and would raise their prices to such an extent as to yield them an enormous profit, although remaining low enough to bar American competition.

It goes without saying that the German press, which would suffer most from such increase in the cost of paper, is waging a lively campaign against this measure.

A year ago, printing paper in Germany cost from 21 to 23 pfennigs per kilogram (5 to 5.47 cents per 2.2 pounds); since then prices have increased to 28 to 30 pfennigs (6.66 to 7.14 cents). The larger German journals consume 10,000 kilograms (22,460 pounds) of paper daily. A year ago, this quantity cost on the average 2,200 marks (\$523.60); to-day, however, 2,900 marks (\$690.20); and, should the tariff which the paper manufacturers desire become law, this cost would increase to 3,700 marks (\$880.60).

WALTER SCHUMANN,

MAINZ, *February 23, 1901.*

Consul.

GERMAN INFORMATION OFFICE FOR FOREIGN COMMERCE.

I am informed that a commission of the German Board of Trade has considered the question of the establishment of an information office for foreign commerce. In some quarters, it is doubted whether such an institution can be of any real service, as it may compete with bureaus already existing. Its promoters urge that the United Kingdom, United States, and France having anticipated Germany in this respect, this country dare not long remain behind. The new organization is not to supersede, but to complete, the old one. To finance the affair, it is proposed that three thousand firms should each subscribe annually \$25; the commercial chambers, 2 per cent of their receipts; from unions, from the Empire, from the city of Berlin, an approximate sum of \$50,000 is expected. The work

of the information office would consist in furnishing information on laws and decrees relating to trade with foreign lands, duties on each single article, regulations as to certificates of origin, agents, commercial travelers, protection of patents, information as to means of transport, cost of freight to districts where goods are required, or from which goods may be obtained. It is especially urged that reliable information should be given as to the addresses of respectable foreign solicitors. It is also expected that the German consular corps will help the project in every way in its power.

OLIVER J. D. HUGHES,

COBURG, *February 16, 1901.*

Consul.

TYPEWRITERS AND ADDING MACHINES IN GERMANY.

Typewriters and adding machines have become so indispensable to business concerns in this country, within the last few years, that the former is to be found in every large bureau or office, and no prominent savings or banking institution can do without the latter. The first typewriters and adding machines used in this country were of American manufacture, and the large increase in their importation caused the German customs officials to place them in a special class on January 1, 1900. Formerly, they were assessed for duty under the head of wrought-iron goods.

During the first three quarters of 1900, typewriters and adding machines valued at \$562,870 were imported into Germany. The greater part of these machines (39.57 tons, or 75.9 per cent of the whole import) came from the United States; 5.51 tons, or 10.5 per cent, from England; and 5.18 tons, or 10 per cent, from Belgium.

During the same period, the total export of typewriters and adding machines from Germany amounted to 19.73 tons, valued at \$213,010. Of this amount, 6.17 tons, or 31.3 per cent, were exported to Austria-Hungary; 3.75 tons, or 19 per cent, to Sweden; and 2.87 tons, or 14.5 per cent, to Russia. Thus the imports exceeded the exports by 32.41 tons in weight and \$349,860 in value.

As the manufacture of typewriters in Germany has met with some success and as they are coming more and more into use, some German authorities think it is probable that, in spite of the increasing demand, the import will not increase very materially.

I do not agree with this, however. I think that there is a market in this country, as well as in Russia, Sweden, Austria-Hungary, and England, for American typewriting and adding machines.

BRAINARD H. WARNER, Jr.,

LEIPZIG, *February 18, 1901.*

Consul.

MULTIPLEX TYPE-PRINTING TELEGRAPH.

According to the Cologne Gazette, the Baudot multiplex type-printing telegraph (a French invention) operates so excellently that the results in the Berlin and Paris line have surpassed all expectations.

Since the main office has educated a sufficient number of operators for the Baudot apparatus, the system is now regularly in use during the greater part of the day.

It has been demonstrated that the whole telegraph business between Berlin and Paris, which heretofore required five telegraph lines, can now be easily done over one by means of the Baudot system.

The operation is perfect and uninfluenced by minor interruptions of the conduit. The work for the operators is not more arduous than with the Hughes apparatus.

It is to be regretted, says the article, that the new system is not suitable for long cables, otherwise the German-English cable would profit at once.

The new successes in quick and multiplex telegraphy will create a peculiar situation for the administration of the telegraphic service. If the Baudot system be introduced all over Germany, and, in addition, if the quick telegraph of Pollak and Virag be utilized for newspaper telegrams, and if Professor Slaby succeeds in applying his discoveries concerning multiplex-spark telegraphy to ordinary wires, then it will be only a question of a short time when the existing telegraph business will hardly keep all the lines busy.

RICHARD GUENTHER,

FRANKFORT, *February 27, 1901.*

Consul-General.

THE GERMAN TOY INDUSTRY.

The toy-making industry of Germany has enjoyed great prosperity during the past few years. Cape Colony, British East India, eastern Asia, North and South America, and Australia buy German toys, and the demand seems to be increasing from year to year. The United States and England are by far the largest purchasers, the shipments to these countries in 1900 having exceeded those of any previous year. Great Britain has bought over 11,000 tons annually during the last few years, and since 1895 has increased her purchases over 1,000 tons. The United States bought 6,195 tons of toys from Germany in 1895 and 9,612 tons in 1900, an increase of 3,500 tons, or more than one-third. The toy manufacturers say that this increase is remarkable, in view of the fact

that a few years ago an attempt was made in the United States to prejudice the public against buying German toys by circulating a report that the paint used in their manufacture contained ingredients dangerous to health. The manufacturers declare further that for a time this agitation caused a decrease in the imports of German toys, but since the report was proved to be chimerical, they have apparently found all the more favor in the United States; and last year, there was an immense increase in their importation.

If we compare the total value of the exports of German toys for 1900 (amounting to 53,400,000 marks) with those of 1899 (amounting to 43,000,000 marks), we find an increase that has not heretofore been approached. The year 1899 showed an increase of 4,200,000 marks over 1898, but in 1898 (the exports amounting to 38,800,000 marks=\$9,044,000) there was a decrease of 1,500,000 marks in comparison with 1897 (total exports, 40,300,000 marks=\$9,606,400). Most of the increase of 1900 over 1899 (10,400,000 marks=\$2,475,200) was in the exports to the United States and Great Britain. The exports to the latter country amounted to 16,000,000 marks (\$3,808,000) in 1899 and to more than 20,000,000 marks (\$4,760,000) in 1900, while the exports to the United States increased from 10,400,000 marks (\$2,475,200) in 1899 to about 16,000,000 marks (\$3,808,000) in 1900.

The exports to France are also of importance, as they stand third on the list. During 1899, the exports of German toys to France amounted to 1,312 tons, valued at 3,100,000 marks (\$737,800); for 1900, however, 1,454 tons, valued at 3,400,000 marks (\$809,200). France only imported 810 tons in 1895, but the import since then has been steadily on the increase.

BRAINARD H. WARNER, Jr.,

LEIPZIG, *February 13, 1901.*

Consul.

GERMAN PERFUMERY INDUSTRY.

The German perfumery industry is growing steadily and gains customers who formerly dealt exclusively in French and English perfumery. During the period of commercial treaties, the export of German perfumeries has largely increased. While for 1891 the exports of soaps and perfumeries amounted to but 9,400,000 marks (\$2,237,200), they had grown to about 17,000,000 marks (\$4,046,000) in 1899. In 1900, the exports of soaps show considerable decrease, while those of perfumeries show a gain. The value of perfumery exported in 1900 was 11,000,000 marks (\$2,618,000), against 10,300,000 marks (\$2,451,400) in 1899 and 8,600,000 marks (\$2,046,800) in 1898.

The large increase in the exports of perfumeries dates from 1895. They have met with favor in England, in British Africa, and in India. Holland, Russia, Austria-Hungary, Turkey, Egypt, China, Chile, and Australia consume German perfumery.

The chemical odors and artificial ethereal oils of German manufacture have greatly injured the French flower-field industry, as the prices for the artificial odors are much less than those of the natural ones.

The showing in exports of toilet soaps is less favorable, mainly, it is claimed, on account of low prices caused by lively competition. Besides, as is claimed here, there still exists a popular prejudice in favor of French and English toilet soaps. Still, if the exports of toilet soaps in 1900 are compared with those of 1891, a great gain is observed, viz, 1,262.4 tons in 1891 against 3,922.4 tons in 1900.

RICHARD GUENTHER,

FRANKFORT, *February 23, 1901.*

Consul-General.

INDUSTRIAL SCHOOL AT SONNEBERG.

A new industrial school has been opened at Sonneberg, the home of the Thuringian doll and toy trade. Private donations and government aid on the part of the dukedom of Saxe Meiningen have provided the means necessary for the establishment of this institution.

The massive stone building in which the school is located is 45 meters (147.6 feet) long and 15 meters (49.2 feet) deep and stands quite isolated, so that light and fresh air are freely admitted to the large rooms in which drawing and molding lessons are given; turning, wood carving, modeling of gypsum figures, and the preparation of the various kinds of clay for molding purposes are also taught. Space is provided for the exhibition of gypsum models, drawing patterns, etc. One room is principally used for modeling animals in life size, this being a specialty of the town of Sonneberg. Deserving of particular mention is the practical arrangement of the rooms in which the models and patterns are exhibited. They are separated from the large corridors only by glass and wood partitions instead of by heavy walls, so that not only plenty of light is admitted into the passages, but the visitor is shown at a glance the extent of the work in which the pupils are engaged. The building contains two rooms for the "Handelsfachschule" (a school in which commercial apprentices, in addition to the work they learn in the respective offices, are taught foreign languages, the theory of bookkeeping, commercial geography, etc.). The office of the Sonneberg Chamber of Commerce is also located here.

The exhibition of Sonneberg toys at the World's Fair in Chicago was the subject of general admiration, and at the Paris exposition it was awarded the grand prize. This remarkable success, it is generally admitted, is to a great extent due to the work of the industrial school, although this has had quarters entirely inadequate for the purpose.

The following table shows the number of pupils during the last ten years:

Year.	Pupils from—		Total.
	Sonneberg and its neighborhood.	Other parts of German Empire.	
1889-90.....	34	5	39
1890-91.....	34	5	42
1891-92.....	38	4	42
1892-93.....	37	4	43
1893-94.....	33	8	41
1894-95.....	32	9	41
1895-96.....	35	8	43
1896-97.....	47	10	57
1897-98.....	47	9	56
1898-99.....	44	8	51
1899-1900.....	46	8	54

Better accommodations being offered in the new home, the number of pupils is expected to increase considerably.

German exports of toys in 1900 amounted to 50,000,000 marks (\$11,900,000), and more than half thereof was produced in the Coburg-Sonneberg consular district. These figures speak in eloquent language of the importance of the toy trade here. In the training of juvenile workers, the bringing up of capable manufacturers, and the creation of new models the school will be of great value.

OLIVER J. D. HUGHES,

COBURG, *February 28, 1901.*

Consul.

CORN KITCHENS IN GERMANY.

Germany imported last year 1,384,157 metric tons (1 metric ton = 2,204.6 pounds) of corn, against 1,626,595 tons in 1899. By far the greater part of this comes from the United States, although the imports from the Argentine Republic and other countries form an aggregate of some importance. This cereal is destined to become an important article of food in Germany, as well as in other portions of Europe, and our people can do much to aid in its introduction. That the German people are not wedded to rye bread and

to wheat bread is to be seen in the great favor with which oatmeal and rice are received. The introduction of oatmeal is a matter of recent date, but it is already looked upon as a necessity, in spite of the fact that but a single brand is obtainable in most places.

The average German is certainly prejudiced against corn as an article of food, except for cattle and swine; but that this prejudice can be overcome there is little doubt. He has no hesitancy in using cornstarch, nor does he object to beet sugar, although beets form an important article of food for cows; and if he can be shown that corn properly ground and prepared makes a palatable, wholesome, and cheap article of food, his opposition will, in my judgment, disappear.

I believe that a plan involving some of the features of the "corn kitchen" at the Paris exposition would be the most feasible one to familiarize the German people with the value of corn as an article of food. Under competent direction, kitchens could be conducted at a comparatively small expense in the larger German cities. In the kitchens, corn prepared in various ways could be served free or at a nominal cost. Special afternoons and evenings could also be devoted to pupils from the cooking schools, to grocers and supply houses, to housewives, and to others.

In connection with the kitchen, ample facilities should be afforded for showing, by charts and otherwise, the value of the grain as a food product, its consumption in other places, the cost of production, statistics of corn-producing States, samples of the grain, illustrations of the machinery and implements used in its culture and preparation, etc.

As a necessary corollary to the above, an abundant supply of corn meal and other preparations of corn should be placed in store at important shipping points, as Hamburg, Mannheim, etc., from which dealers could be promptly supplied.

Such an enterprise would need efficient management. A large number of assistants would not be necessary, though they should be chosen with great care. It is probable that young men and young women could be secured from some of our colleges who, at little more than the actual expense of traveling, would be glad of the opportunity to render assistance, as it would be an excellent chance for them to learn the language and the customs of the people.

In most of the larger cities are resident Americans who, if solicited, would be able to make valuable suggestions. The United States consuls, so far as possible, would doubtless aid in getting the consent of local authorities for the establishment of the enterprise and in arousing interest therein.

Many of the large manufacturing concerns in this consular district are providing kitchens in which their employees of both sexes

are provided with meals at low prices. I believe some of these manufacturers would take a personal interest in a matter of this kind and would perhaps lend the project substantial aid. A gentleman living in this city and at the head of one of the largest manufacturing establishments of its kind in Europe was at Paris several months during the exposition. He told me recently that the "corn kitchen" had interested him greatly, and that he had visited it often and had been much surprised at the variety of corn dishes served there.

While in 1899 nearly 7 per cent, and in 1900 more than 6 per cent, of all the corn imported by Germany came to Mannheim, an American residing here for many years past told me recently that he had never been able to buy any corn meal in this city of about 200,000 inhabitants; that he had used it in his family, but had it sent from England; and that the local mills to which he had applied were not equipped for grinding corn meal.

I am told that the kitchen idea was tried here some years ago by parties introducing a substitute for coffee, and that it led to enormous sales of the product.

In addition to the corn received at Mannheim yearly, more than 20 per cent of all the wheat imported by Germany during each of the last two years came to this city, besides vast quantities of rye, oats, and barley. From this, it would appear that Mannheim offers special advantages as a center of distribution for corn as well as for other American products.

While the agrarians are viewing with alarm the adoption of our oatmeal and other food products and are striving for an increase of the tariff on grain, there is, as is well known, a strong feeling in favor of the cheapening of food products in Germany. This feeling can be best described by quoting from a petition at present circulating in this city against an increase of the tariff on grain. It is addressed to the Reichstag and has the approval of the Mannheim press. It states, among other things:

The greatly predominating majority of the German people—the millions of German laborers, mechanics, office employees, merchants, and husbandmen—have the deepest interest that the cost of the necessities of subsistence shall not be increased by a measure which can profit only a small number of well-to-do land proprietors, and must bring with it the great disadvantage of endangering our export trade and impairing our commercial relations in other lands.

H. W. HARRIS,

MANHEIM, *February 22, 1901.*

Consul.

EXPOSITION OF FIRE APPARATUS AT BERLIN.

It is to be feared that American manufacturers of fire preventing and extinguishing apparatus are going to lose a rare and valuable opportunity through their unaccountable indifference to the special international exposition of that whole class of appliances and methods which is to be held in Berlin during the coming summer. This indifference is all the more remarkable since the brilliant record made by the American firemen and makers of fire apparatus at Paris last year, which, as will be remembered, was one of the noted features of the exposition. In view of that success and the well-known preeminence of American fire brigades and their equipment, the managers of the forthcoming exposition at Berlin have been especially anxious that the United States shall make a full and representative exhibit, and are somewhat surprised at the meager response which has been thus far received from our country. This is certainly due to no lack of publicity. The whole plan and schedule of the exposition—conditions, classification of exhibits, cost of space, etc.—were reported simultaneously and in detail from the United States embassy at Berlin and from this consulate-general early in August last and published in *ADVANCE SHEETS* Nos. 803 of August 19 and 817 of August 25, and *CONSULAR REPORTS* Nos. 241 and 242 for October and November, 1900,* respectively. As a result of those publications a few somewhat languid inquiries were received, but nothing at all commensurate with the fame of American builders of engines and fire apparatus, nor the unequalled opportunity that they will find here at trifling cost for showing their products before the assembled experts and municipal officers of Europe, who are many years behind our people in all that relates to fire extinguishing and will come here to see, test, and order the best that the world has to offer. It may be many years before such another exhibition will be held at a capital of central Europe, and the opportunity now lost will certainly not soon recur.

In order to especially facilitate American exhibits, arrangements have been recently made by which all machinery and apparatus intended for exhibition shall not only be admitted free of duty, but shall be brought from New York to Hamburg and Bremen by the Hamburg-American and North German Lloyd steamship lines and returned after the exposition free of charge for freight or handling. Exhibits coming from these two seaports will be subject to the usual charges for railway freight and delivery at the exposition, but they will afterward be returned gratis to either seaport, so that the only

*A note from the German embassy in Washington on the same subject was published in *ADVANCE SHEETS* No. 921, December 28, 1900 (*CONSULAR REPORTS* No. 246, March, 1901).

expense of this kind from the American port of shipment and return will be the ordinary railway freight rate from Bremen or Hamburg to Berlin. Certainly, this is a very liberal proposition.

The exhibition was originally scheduled for the months of June and July, but as now decided will open about May 15 and continue until the end of August. Applications should nominally be all in by April 1, but this limitation will be relaxed somewhat in favor of foreign exhibitors who may have postponed their decision until the last moment. All telegrams and correspondence relating to exhibits, space, or any difficulty about ocean or rail freights should be addressed to Grand Director Giersberg, Berlin.

FRANK H. MASON,
Consul-General.

BERLIN, *March 25, 1901.*

GLASS EXHIBIT AT THE PARIS EXPOSITION.

Consul Hughes sends from Coburg, March 21, 1901, translation of a speech made before the Technical Union of Hirschberg on artistic glassware at the Paris exposition, from which the following notes are taken:

The French glass exhibit showed the intelligence, inventive genius, and assiduity of this people. The factory of St. Gobain, in particular, had a fine display. Seventy-seven million kilograms (77,000 tons) of glass were used in 1900 in its ten branches, against 41,000,000 kilograms (41,000 tons) in 1889. It produces 30 per cent of the entire output of glass in Europe. Among other things, it had a mirror 8 meters (26.4 feet) high and 4 meters (13.2 feet) broad, and it was stated that it could have been furnished of still larger size if transportation facilities had been available. This firm's principal aim is to use glass as a building material. The broad area of 2,500 square meters (26,900 square feet) above the railway tracks in front of the Esplanade des Invalides was covered with glass flagstones, which, though exposed to the open air, sustained the enormous freight traffic during the exhibition. In the "Palais Lumineux" the factory of St. Gobain erected a building which, if it did not show the practical use of glass in construction, yet in its fantastic shape, when lighted by electricity, produced a fairylike effect. A number of important technical innovations, as wire glass, glass troughs for accumulators, colored glass, etc., are connected with the name of Leon Appert, president of the Society of French Engineers. There are now employed in the glass industries of France 42,000 men. Emile Galle, of Nancy, is hailed as an artist and technical expert in this line, manufacturing glass vases in almost perfect imitations of nature.

There was little representation from England or America in this line, which is to be regretted, as a good occasion was offered for comparing the glass industries of foreign countries. Tiffany had some examples of enamel on copper which were remarkable and beautiful, and in hollow glassware the new colors exhibited by him were the delight of connoisseurs.

The German glass concerns did not exhibit largely, though Sievert & Co., of Dresden, took the grand prize for hollow-glassware articles blown with the help of mechanical apparatus—for instance, a bathing tub; its punched glass, glass sheets decorated with colors by rollers, etc., were also highly praised.

INCREASED PORT DUES AT DANZIG AND STETTIN.

Consul Kehl, of Stettin, forwards, February 8, 1901, the following translation of the new harbor dues for the port of Danzig, which take effect April 1, 1901:

Incoming or outgoing vessels pay for every cubic meter (35.316 cubic feet) as follows:

- A—(1) Steamers with cargo in or out, 12 pfennigs (2.85 cents).
 (2) Steamers in ballast or empty, 6 pfennigs (1.42 cents).
 B—(1) Sailing vessels with cargo, in or out, 10 pfennigs (2.35 cents).
 (2) Sailing vessels, in ballast or empty, 5 pfennigs (1.19 cents).
 Steamers measuring 200 cubic meters (7,063 cubic feet) or less pay 6 pfennigs and 3 pfennigs (1.42 and 0.71 cents), respectively.
 Sailing vessels of less than 200 cubic meters measurement pay 5 pfennigs and 2 pfennigs (1.19 and 0.48 cents).
 Vessels with less than one-fourth of a cargo, or vessels with whole cargoes of either stone, slate, chalk, coals, coke, turf, salt, iron ore, lime, etc., or vessels used for pleasure, whether in or out, pay fees No. 2 in Schedule A and B.

Under date of February 28, 1901, Consul Kehl reports that on April 1 the following extra port dues (to be applied to dredging the deep water way to Swinemünde) will be assessed at Stettin on the cargo of all incoming and outgoing ships:

Ships measuring from 2,000 to 2,500 cubic meters (70,632 to 78,290 cubic feet), 6 pfennigs per 1,000 kilograms (1.42 cents per 2,204.6 pounds) on the total freight carried; ships with a measurement of more than 2,500 cubic meters, 12 pfennigs (2.85 cents) per 1,000 kilograms.

On incoming ships, the dues are collected from the consignees by the ships' agents; on outgoing ships, from the consignors.

NETHERLANDS ACCIDENT INSURANCE LAW.

Minister Newel sends from The Hague, February 21, 1901, a copy, together with translation, of a measure which has passed the States-General and received the royal sanction providing that employers in certain branches of labor shall insure their employees against pecuniary losses consequent on accidents which may happen to them in the execution of their trade. The law* contains one hundred and sixteen articles, and notes sixty-one classes of labor in which, if motor power is used, it shall apply. The State Insurance

* Translation in full of which has been filed for reference in the Department of State.

Bank is to be located at Amsterdam. The officers are to be appointed by the supreme power of the country. The costs in the first instance shall be advanced by the State treasury.

The law provides that the employer shall notify the State Insurance Bank of the trade he carries on, by depositing at the nearest post-office a filled-in form, drawn up by the Minister of Waterstaat, whereupon the managers of the bank shall fix and notify the employer of the class under which his trade falls. It is also provided that, according to the class in which his trade is placed, the employer shall contribute toward the working expenses of the bank in proportion to the wages of his employees; he is also made responsible for the notification to the Insurance Bank of accidents, and for the immediate medical assistance of the injured and the supply of all information. The State Insurance Bank provides medical and pecuniary assistance to any employee who, in the exercise of his calling, shall be accidentally injured in such a way that he is no longer partially or entirely capable of doing his ordinary work. In case of death, funeral expenses are to be paid, and these indemnities shall extend in fixed proportion to all the relatives of the employee dependent upon him for support. The supervisory council shall be composed of nine members, of whom one-third shall be employers and one-third employees, all appointed for a term of three years by the supreme power of the country. There is also a council of appeal composed of employers and employees, with whom appeals against any decision may be lodged. Penalties for infringement of the provisions of this law render the culprit liable to fines varying from 100 to 600 florins (\$40 to \$240).

PATENT MEDICINES IN NORWAY.

Consul-General Bordewich reports as follows from Christiania: Norwegian laws permit purchase of patent medicines from abroad for individual use, and these can pass in the ordinary modes of communication without hindrance. In Sweden, purchase of medicines from abroad by individuals is prohibited.

All retail sale of drugs and medicines in Norway is a monopoly and entirely in the hands of the druggists. Patent medicines are also, to a considerable extent, sold by them, although generally on doctor's prescription only. The city druggists are often importers; they import crude drugs, mostly from Germany, and compound the medicines in their own laboratories. But of late, quite large quantities of prepared medicines and so-called "patent medicines" are also imported, and I believe American druggists and manufacturers, with their many excellent remedies to offer, should be

able to increase their sales, which are now confined to a very few articles, finding their way over here through British jobbers. Druggists' sundries, trusses, rubber goods, artificial limbs, etc., may also find a market.

The rate of duty on medicines is determined by their ingredients: the duty on such as contain spirits in large proportions would be high.

The principal importers of drugs and medicines are:

Nyegaard & Co., Kongens gade 19, Christiania.

Elefantapoteket, Torvet 11, Christiania.

Jernbt. Apotek, Skippergaden 27, Christiania.

Løveapoteket, Storgaden 21, Christiania.

Apoteket, Nordstjernen, Storthings gade 6, Christiania.

Rigshospitalets Apotek, St. Olavs Pl. 2, Christiania.

Svaneapoteket, Karl Johansgade 13, Christiania.

Løveapoteket, Strandgaden, Bergen.

Joh. Lothe, Strandgaden 4, Bergen.

D. M. Wold, Theatergaden 1, Bergen.

Hjorteapoteket, Kongens gade 27, Trondhjem.

Løveapoteket, Kongens gade 6, Trondhjem.

Svaneapoteket, Kongens gade 14, Trondhjem.

Örneapoteket, N. Bakl 76, Trondhjem.

The principal importers of druggists' sundries, etc., are:

Bang, Tegner & Co., Toldbodgaden 24, Christiania.

C. Brose, Pilestrædt 9, Christiania.

Chr. Falchenberg, N. Slotsgade 23, Christiania.

Bernt Fossum, Rosenkrantz gade 2, Christiania.

Jean Mette, Tordenskjolds gade 3, Christiania.

NEW HARBOR IN NORWAY: MINING DEVELOPMENT.

German papers report that a new harbor is being constructed at the north of the Scandinavian Peninsula, for the chief purpose of shipping the immense quantities of iron ore found in Lapland. The iron mines of Gellivare and Luossovaara have been developed to such an extent within the last ten years that better facilities for export of the ore have become an urgent necessity.

The new harbor will be named Victoria Harbor, and its entire northern shore of more than half a mile will be used exclusively for the shipment of ore produced in the above-named mining districts.

The Government of Norway has bought an extensive tract along the south side of the harbor.

The harbor will be constructed after the plans of that of Duluth, Minn. The total cost of the docks and buildings is estimated at \$800,000; the cost of the docks proper, at about \$650,000.

The plans for the new city to be built there are nearly completed and many houses are built and some streets laid out already. Of late, new iron deposits of enormous extent have been discovered in Lapland, and steps for developing them have been taken. A daily production of 5,000 tons of ore is expected. Some of these claims have been bought by a Belgian company.

Several English and German experts have lately been exploring this region for iron and other minerals, and important discoveries are said to have been made.

The laws of Norway are very favorable for mining enterprises, as the discoverer of a mineral deposit on public lands is at once entitled to exploit it. All he has to do is to give notice of his discovery and have such notice registered.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *February 28, 1901.*

SUGAR-BEET INDUSTRY IN EUROPE.

I send herewith a statistical table, based on the latest official and other competent reports, showing the results obtained in the leading sugar-beet-growing countries in the past eleven years. To the average reader, these dry-as-dust statistics will offer no attraction, but to everyone interested in the subject of beet sugar, the following figures may convey information that will be useful. I have grouped the countries under consideration in the order of their importance—Germany, France, Austria-Hungary, Russia, and Belgium.

Year.	Number of factories.	Acreage.	Beets per acre.	Sugar per acre.	Per cent of sugar in beets.	Sugar production.	Sugar export.	Sugar consumption.	Sugar consumption per capita.
<i>Germany.</i>			<i>Tons.</i>	<i>Tons.</i>		<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Pounds.</i>
1890-91.....	406	825,825	13.03	1.5	12.09	1,336,220	747,571	470,253	23.24
1891-92.....	403	861,583	11.41	1.38	12.06	1,198,026	690,329	476,265	23.33
1892-93.....	401	869,829	11.29	1.41	11.94	1,230,835	722,413	501,319	24.21
1893-94.....	405	945,995	11.12	1.43	12.34	1,366,004	724,153	516,639	24.69
1894-95.....	405	1,090,801	13.27	1.67	12.15	1,827,974	1,040,551	552,695	16.17
1895-96.....	397	939,749	12.55	1.73	13.11	1,615,111	952,637	668,800	31.22
1896-97.....	399	1,049,881	13.07	1.75	12.66	1,836,536	1,229,592	585,231	23.26
1897-98.....	402	1,079,810	8.62	1.71	12.79	1,852,857	1,033,262	803,897	28.81
1898-99.....	401	1,054,229	11.52	1.63	13.15	1,721,718	1,008,038	757,008	30.73
1899-1900.....	399	1,054,355	11.79	1.69	14.4	1,790,000	981,462	858,039	33.9
1900-1901.....	395	1,095,790	12.06	1.79	14.91	1,970,000	.....	875,000	.....

Year.	Number of factories.	Acreage.	Beets per acre.	Sugar per acre.	Per cent of sugar in beets.	Sugar production.	Sugar export.	Sugar consumption.	Sugar consumption per capita.
<i>Austria-Hungary.</i>			<i>Tons.</i>	<i>Tons.</i>		<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Pounds.</i>
1890-91.....	200	737,564	9.3	1.4	15.05	767,466	472,458	282,671	.....
1891-92.....	210	810,241	8.2	0.95	11.59	774,498	468,618	304,579	.....
1892-93.....	214	817,160	8.7	0.95	10.92	793,060	481,321	321,242	.....
1893-94.....	216	865,838	7.4	0.96	13	831,095	490,081	313,372	.....
1894-95.....	220	929,461	9.2	1.12	12.17	1,044,577	452,884	364,727	.....
1895-96.....	218	813,872	8.1	1.09	13.45	781,080	504,531	378,841	.....
1896-97.....	217	894,109	9.1	1.08	11.87	934,007	565,106	338,580	18.21
1897-98.....	216	748,466	9.1	1.11	12.19	831,667	493,455	372,888	17.83
1898-99.....	214	766,257	9.9	1.37	13.94	1,051,200	719,018	387,285	18.27
1899-1900.....	213	804,063	10.5	1.37	13.05	1,108,007	714,577	359,668	17.64
1900-1901.....	213	839,152	8.82	1.3	14.78	1,075,000	.....	379,000	.....
<i>France.</i>									
1890-91.....	377	547,574	11.3	1.21	10.7	685,469	316,560	501,973	.....
1891-92.....	370	590,786	10.16	1.18	11.6	642,341	249,810	523,053	.....
1892-93.....	368	537,660	9.77	1.07	10.9	581,518	249,897	495,508	.....
1893-94.....	370	541,420	9.7	1.07	11.5	571,987	284,174	472,374	.....
1894-95.....	367	566,803	12.21	1.21	10.15	782,852	333,096	525,171	.....
1895-96.....	350	595,851	10.7	1.36	12.7	659,604	248,388	458,657	.....
1896-97.....	358	608,370	11.37	1.23	10.8	752,081	360,068	547,816	32.85
1897-98.....	344	564,572	11.21	1.45	12.9	821,235	463,672	507,538	31.02
1898-99.....	344	566,147	10.49	1.40	13.34	830,132	271,469	564,227	33.02
1899-1900.....	349	626,480	11.81	1.47	12.15	925,175	523,161	593,511	36.95
1900-1901.....	344	685,391	10.79	1.62	15.01	1,100,000	.....	618,000	.....
<i>Russia.</i>									
1890-91.....	222	767,601	6.4	0.67	10.48	509,000	87,013	378,222	.....
1891-92.....	225	758,955	5.7	0.71	12.45	549,000	111,676	366,958	.....
1892-93.....	224	713,528	4.1	0.56	10.98	404,115	21,748	402,580	.....
1893-94.....	225	805,282	7	0.79	11.28	642,783	84,439	566,744	.....
1894-95.....	226	825,779	6.5	0.72	11.06	597,044	85,472	492,503	.....
1895-96.....	229	852,594	6.4	0.88	13.75	754,908	181,454	505,960	.....
1896-97.....	234	885,945	6.4	0.82	12.81	728,667	114,748	505,716	11.82
1897-98.....	238	1,005,591	6	0.73	12.16	738,715	163,200	565,000	12.61
1898-99.....	241	1,103,173	5.4	0.7	12.96	776,066	108,169	666,700	12.91
1899-1900.....	265	1,366,075	5.5	0.66	12	900,000	213,607	685,000	13.95
1900-1901.....	268	1,366,075	4.7	0.65	13.83	890,000	.....	700,000	.....
<i>Belgium.</i>									
1890-91.....	118	.....	.....	.....	.....	177,000	161,523	.....	.....
1891-92.....	119	.....	.....	.....	.....	165,000	135,980	.....	.....
1892-93.....	121	.....	.....	.....	.....	172,440	134,217	.....	.....
1893-94.....	121	.....	.....	.....	.....	206,400	210,459	57,005	.....
1894-95.....	122	.....	.....	.....	.....	247,000	100,081	104,832	.....
1895-96.....	123	.....	.....	.....	.....	235,795	143,869	51,014	.....
1896-97.....	123	176,121	.....	.....	.....	285,000	185,681	64,118	23.08
1897-98.....	124	132,763	.....	.....	.....	265,307	242,481	37,593	23.08
1898-99.....	123	121,407	.....	.....	.....	300,000	178,324	.....	23.17
1899-1900.....	109	118,235	13.33	2.29	16.43	346,000	200,578	70,479	23.3
1900-1901.....	106	170,125	14.47	1.88	12.92	300,000	.....	70,000	.....

HENRY W. DIEDERICH,

BREMEN, March 21, 1901.

Consul.

WOOD PAVING IN LONDON.

The duty of paving and maintaining the streets of London devolves upon the local authorities, and not upon the London County Council. By the local authorities is meant the various boroughs into which London is divided.

The cost of the construction of creosoted soft-wood (yellow deal) paving, laid on a bed of Portland-cement concrete (6 to 1 or 8 to 1) 6 inches in depth, ranges in London from 10s. to 12s. (\$2.43 to \$2.92) per superficial yard, and of hard-wood (Australian) paving, from 12s. to 16s. (\$2.92 to \$3.89) per square yard. The annual cost of maintenance in the case of soft-wood blocks is from 1½d. to 2d. (3 to 4 cents) per superficial yard; but reliable information is not obtainable with regard to the wear and tear of hard-wood blocks.

In the borough of St. Marylebone, London, a large area of Swedish deal block paving has been laid in the principal carriage ways. Very little of this has been treated with creosote or other similar compound, the greater part being simply grouted with a composition of pitch tar, etc., the oils of which permeate the wood. This material lasts from seven to eight years in streets of heavy traffic and from twelve to thirteen years in streets of lighter traffic. The blocks are from 5 to 6 inches in depth, and are usually laid upon a foundation of Portland-cement concrete.

It is found that untreated wood blocks put down in carriage ways where they are not subjected to any traffic worth mentioning are very liable to decay, and it is considered by many that it is advisable to treat all soft paving with creosote, carbolineum, or other compound, as this treatment conduces to the life and soundness of the material and renders it more sanitary and healthful.

The following is a standard specification for laying wood paving:

The carriage way shall be laid with wood paving. The entire area under the wood paving, and the adjacent curbs, shall be formed of Portland-cement concrete, of the depth shown on the drawings, and shall be properly floated on the top with fine stuff. The whole of the concrete to be composed of Portland cement and ballast in the proportions and otherwise as described in clauses 16, 18, and 19; the fine stuff for the floating to be composed of one of cement to five of sand, and the surface to be properly ruled and finished off and left hard and smooth. When the concrete foundation has been properly formed and has thoroughly set, the space between the curbs is to be paved with wood, as hereafter described. The paving is to be of new wood blocks, 6 inches deep by 9 inches by 3 inches, cut out of the best approved Swedish yellow deals (Gothenburg thirds), thoroughly sound and square, properly and uniformly cut, entirely free from sap, shakes, large or dead knots, and all other defects, and creosoted so as to be increased in weight not less than 12 pounds per cubic foot. As soon as the concrete foundation is thoroughly set to the satisfaction of the engineer, the blocks are to be laid upon its surface in rows at

right angles to or radiated across the street; a space of three-eighths of an inch being left for the joint. At each side of the carriage way, two courses are to be laid longitudinally (a suitable margin, 2 inches wide, filled in with approved clay, being left next the curbstone to allow for swelling). The blocks at all intersections of streets are to be laid with proper angle courses. Each block is to have three approved cast-iron studs fixed thereto, according to sample at the office of the council, or some other approved means shall be adopted for keeping a uniform joint. The joints are to be carefully and fully filled up with grout, composed of one part of Portland cement and five parts of clean, sharp Thames or approved pit sand, mixed with water in a grout truck and swept into the joints. Upon the surface, a top dressing, 1 inch in thickness, of fine ballast is to be spread, after which the traffic is to be fenced off for six days. Where the wood paving abuts against any macadam road, a double course of approved granite sets (grouted) is to be laid on concrete along the whole length of the joint, between the wood paving and the macadam. The concrete under the wood paving shall be continued on to form the bed for the pitching, and shall project at least 3 inches beyond the pitching.

If the engineer shall so order, the wood paving, instead of being laid with open joints as above described, shall be laid with close joints, run in with pitch and tar to the engineer's approval and as he may direct; in all other respects the provisions of clause 23 will apply.

Instead of the deal blocks mentioned in clause 23, the wood blocks shall be the best quality karri or jarrah timber, laid with close joints and run in with pitch and tar. These blocks are to be 9 inches by 3 inches by 5 inches deep, and will not require creosoting, but shall be dipped once in boiling tar at the time they are laid; in all other respects, the provisions under clause 23 will apply.

RICHARD WESTACOTT,
Acting Consul-General.

LONDON, *March 20, 1901*

INDUSTRIAL CONDITIONS IN SPAIN.

Consul-General Lay sends from Barcelona translation of a report recently made to the provincial council by a society of Barcelona manufacturers upon the causes of the present industrial crisis in Spain and the means to remedy it. The report deals comprehensively with the development of Spanish manufacturing interests in the last ten years, giving tables of imports and exports in all the principal lines of trade. It will be printed in full in *Commercial Relations*, 1900 (Vol. II), now in the hands of the printer. The following paragraphs are extracted:

LOSS OF THE COLONIAL MARKET.

The two industries that have suffered most through the loss of the colonies are those connected with cotton and flour, nearly the whole of their large production having been sent to that market. The cotton trade had its most profitable year in 1897, which immediately preceded the loss of the colonies; the following year its exports were reduced one-half, and though there are signs that efforts are being made to open up other markets, the results are slow and costly; meanwhile the spindles that prepared those 4,000,000 kilograms (8,818,400 pounds) and the looms that wove the output of those spindles for the colonial market must remain idle or

manufacture for home consumption, causing overproduction, which has always been the cause of crises.

Among the various branches of the cotton trade, knitted goods are those that best hold their ground, finding their way to almost every market in the world.

After having been unable to export any flour to Cuba during the time that the commercial agreement with the United States was in force, when it lapsed in 1894 this branch of industry resumed its exports, which reached the highest figures in 1897, falling to one-third in the following year and disappearing altogether after the treaty of Paris. To-day, the flour mills, with their excellent machinery which furnished these exports, are no longer necessary, their output causing overproduction, from which the trade suffered severely last year.

Ropes and twines show diminishing exports from 1893, due partly to the commercial arrangement with the United States and partly to the war which broke out in 1895.

The war was also responsible for the decline in the exports of woolen goods, linens, and silks, which have fallen steadily and brought about a general crisis in these branches of trade, more especially in woolen, hemp, and linen manufactures. Silks were never exported in great quantities to the colonies, and during recent years new markets have been opened.

Linen textiles having accredited marks and specialties are able to hold their own in the Cuban market.

Since 1895, owing to the destruction of the sugar crops in the island, the exports of empty jute sacks to Cuba have suffered heavily; it is to be noted, however, that manufacturers have endeavored with some success to secure a share of the trade in other markets.

Boots and shoes, which represented our largest exports to Cuba, have since 1893 been met by the American competition, and during the past two years the exports have declined considerably. In 1898, the exports fell to nearly a third, but doubled themselves in 1899 and show signs of this year reaching an even higher figure. In the year 1893 this industry may be said to have been entirely dependent upon the colonial market, while in 1898 it had by dint of energy and perseverance obtained a footing in other markets, developing at the same time the home trade.

What we say of the boot and shoe trade is applicable also to the manufacture of barrels, the exports of which to the colonies fell to one-half after the outbreak of war; owing, however, to the rate of foreign exchange and to cheap labor, this industry has been able to find ample compensation elsewhere for the loss of its colonial market.

The exports of common soap, which reached their highest figures in 1894, have been maintained, though to a slightly reduced extent.

Although the exports of canned food stuffs to the colonies have diminished, the total exports have not suffered, as they have found other outlets.

Common wines show diminishing exports since 1893, having fallen to one-half, with every indication of a further decline.

The trade in sausages, having been restricted to the colonies, is unable to compete with United States products, and is dying out.

The exports of stearin candles have steadily lessened since 1894 until they are now less than half of what they were, and will probably still further decrease, owing to the American competition.

Cigarette paper has been exported in diminishing quantities since 1896, its present best market being Mexico, as it was formerly. Our general exports kept up to the average for the five years prior to the war. In 1898, Mexico took twice the quantity we shipped to the colonies.

Playing cards attained their maximum exports in 1897, in spite of the war, but

have since then steadily declined, not only with regard to the colonies, but also to other markets, which is due to the fact that playing cards are now manufactured in many parts of America.

We do not mention several other products, the exports of which were unimportant; but, generally speaking, we may say that all have suffered by the loss of the colonies, as is proved by the fact that the exports to Cuba, which amounted to one hundred and thirty-six millions, were in the year 1898 reduced to sixty-six millions, those to Porto Rico fell from forty-four millions to thirteen millions, and those to the Philippines from forty-nine millions to only twenty-seven millions in 1898.

SPAIN'S HOME CONSUMPTION.

The report notes the general revival in Spanish trade which followed the signing of the treaty of peace in Paris, which was fostered by the immigration of over 100,000 Spaniards with their capital. Although there was a decrease in exports to the colonies, this was not felt in Spain, as the home demand absorbed the surplus. The effects of the restricted consumption, however, were felt during the past year. Increase in taxation and the high prices for articles of necessity have aggravated the situation. As a solution of the crisis, an increase of exports, the growth of home consumption, and the perfecting of manufacture are urged.

INCREASE OF EXPORTS.

In regard to the increase of exports, the report says:

A close study of our tariff will show that it was drawn solely with a view to the imports and to obtaining large receipts for the treasury, at the same time securing the home market for native products. In the whole tariff there is not a single article that is free of duty—not even those raw materials which are not produced in Spain and which are used for manufactures; not even are those chemicals free which are required to produce fertilizers, so indispensable to agriculture. Our present position requires that our tariff be revised from the point of view of exports, allowing free entry for, or at any rate reducing the duty on, all products used by our export trade.

If we fail to place our manufacturers on the same footing as their foreign rivals, it is out of the question that they should be able to compete with them in the cost of production.

Among other articles that pay high duties, we may mention mineral oils, potato starch, chlorate of lime; raw cotton, raw jute, abaca, and other vegetable fibers; hair, raw wool, raw and floss silk, raw hides and skins, amber, bones, and many other products that reach our market greatly enhanced in price by the tariff.

Although the law prohibits the levying of an "octroi," or municipal tax, on raw materials used in manufactures, it has been impossible to remove the tax on mineral oils and several other articles.

Against the cheapness of production we have also the new transport duty, which imposes a tax of 5 pesetas (80 cents) per ton on nearly all raw materials imported for manufacturing purposes when brought from Europe and from Mediterranean ports, or from Africa on the Atlantic coast as far as Cape Bojador; when imported from any other country in the world, the duty is 7 pesetas (\$1.12) per ton.

This tax is contrary to the extra duty which is levied on products other than European, but shipped from European ports; seeing that tallow and hides from

the Argentine Republic; cotton, coal, and staves from the United States; nitrate of soda from Chile; and raw jute from India all pay less duty if imported from European depots than if bought in the original markets.

It is needless to point out how prejudicial this is to our commerce, navigation, and manufactures, to the benefit of European intermediaries.

It is absolutely necessary that this transport duty be modified and that more exceptions be made in favor of those materials used in manufactures.

OPENING OF NEW MARKETS.

New markets are secured only at the cost of ceaseless efforts, and it is therefore idle to look for immediate relief in that direction, as it is impossible to improvise consumers.

Individual initiative is required to enable our products to find a sale in the world's markets, and much praise is due to the efforts being made by certain trades—such as those in knitted goods, canned edibles, soap, and fans—which are gradually working their way into foreign markets. The action of the State in this matter is restricted to obtaining advantages for our products by means of commercial treaties.

Seeing that we already have a market of our own in our ex-colonies, we should be able to retain the greater part of that trade, as we have in our favor not only the acquired tastes of the people, but also vested interests, a numerous Spanish population, and trade-marks that enjoy a certain preference.

Our present position with respect to the Antilles and Philippines is as follows: Cuba, subject to a military occupation pending the decision as to its future, grants us the same terms it does to other countries, including the United States; Porto Rico, since April 12, 1900, has applied the United States tariff to all foreign goods; and the Philippines treat us in the same way as all other countries, the United States included.

In regard to Cuba, we must watch closely the decision of its coming Parliament and at once enter into negotiations as soon as its independence is recognized. Should it be annexed to the United States, which is not likely, we shall have to seek for concessions through a commercial treaty with the United States, which is what we must do to obtain concessions in Porto Rico.

With respect to the Philippines, we can only wait, seeing that according to the treaty of Paris any advantage conceded to the United States during ten years is to be at once extended to Spain.

The first thing to be done is therefore to make a treaty of commerce with the United States, which might be based on our second tariff and the special concessions granted to Switzerland, Sweden and Norway, and Holland.

The granting of the second tariff to the United States (which now pays according to the first) would have the immediate effect of benefiting, among other of its products, its mineral oils, coals, minerals, staves, and machinery. Our ordinary tariff would allow these to compete with European products in several branches.

Of course, in order to extend the advantages of the treaty to Porto Rico, which is what principally interests us, we should have to grant special favors to the products of that island, particularly to coffee, which had its best market in Spain.

In arranging commercial treaties with the Spanish American states with a view to exclusive advantages to Spain, we are met by the serious difficulty that those countries desire to retain their commercial independence, seeing that they rely upon their customs receipts for most of their revenue, and also that any concession made to us would, by virtue of existing treaties, have to be extended to the other European nations.

We must not forget that to secure advantages in the Spanish American market,

it is only fair that we also should grant concessions to their products, thus establishing sound commerce.

Possibly, these commercial arrangements might be aided by means of a minimum column in the tariff in favor of colonial products, which are now assessed at the same rate in the first as in the second column, and in favor of those countries that grant certain benefits in return. The immediate effect of this would be to enable us to at once come to some arrangement with Brazil, which has also two columns in its tariff and is becoming an important market for our export trade.

Italy has already done this, and if we fail to do the same, our products will be assessed in that market according to the maximum tariff.

Needless to say that lines of steamers are as important factors as commercial treaties and must be assisted at all costs, recourse being had to those means resorted to by other countries, for it is well known that trade follows the flag.

The State, when giving subventions or bounties to steamship companies, should first stipulate that the freight rates be no higher than those of foreign state-aided lines.

Among the markets we should pay special attention to are those in the East, where Italy has found a large outlet for her commerce. So far, we have overlooked those markets, although they are large suppliers of our own.

Roumania in 1897 sent 32,800 tons to Spain, valued at 4,878,379 pesetas (\$780,000), and in 1898 43,507 tons, valued at 5,094,113 pesetas (\$815,000), while we exported nothing to that country; and it is a lamentable fact that all the imports came in foreign bottoms.

Egypt exported to Spain, in 1897, 7,469 tons (all in foreign ships), valued at 8,475,000 pesetas (\$1,350,000), and in 1898 2,294 tons of a declared value of 9,048,618 pesetas (\$1,447,000), of which 1,053 tons came in foreign vessels; our exports to Egypt being almost nil. We apply our maximum tariff to Roumania, Servia, Montenegro, and Greece, and it is therefore only natural that they should also charge us their highest duties.

Since the 13th of June, 1900, Servia has imposed her maximum tariff on imports from Turkey, which consisted of large quantities of wines and fruit; Italy, having a commercial treaty with Servia, hopes to reap a great advantage for her commerce from this rupture.

Italy has also arranged a *modus vivendi* with Greece, which came into force on July 28, 1900. Spain could obtain with little effort the same benefits from these small eastern states by means of reciprocity treaties, which would not endanger our manufactures (as they are backward in their industries), but would offer an opening for our wines and fruits.

The report urges the establishment of an export bank with State aid; reduction of taxation; extension of agriculture in certain lines—tobacco, for instance; the granting of temporary free entry to articles to be used in manufacture; reorganization of labor; and establishment of boards to arbitrate between capital and labor and decide other questions of importance to trade. The lack of technical personnel is noted among the causes of the backwardness of some of Spain's industries.

INDUSTRIAL DEVELOPMENT IN GREECE.

Under date of February 20, 1901, Consul Hughes, of Coburg, transmits the following translation of an article which appeared in the *Konstantinopeler Handelsblatt*, on industrial development in Greece:

Supported by the Government and various favorable circumstances, industrial enterprises in Greece are flourishing more and more. To a large extent the high gold rate accounts for this; it guarantees to Greek manufacturers such very cheap rates of wages that it becomes almost an impossibility for foreigners to compete with them.

In Syra, the shipbuilding yards have been reopened, a very important thing for navigation in the Levant, as skippers are offered an opportunity of having any kind of repairs attended to without deviating considerably from their route.

In Patras, several factories have been opened recently, viz, a factory for small shot and ammunition, a factory for wire tacks, a ropewalk, a cooper shop, and a lithographic establishment. Besides this, extensive arrangements have been made for the careful cleaning of currants, gas engines producing the required power; a large number of female workers gain their living thereby. By these means well-cleaned fruits, ready for immediate consumption, are exported.

At Tripolizza, carpet weaving is progressing well and the products are much in demand. Almost everywhere handlooms may be found, worked by women, who manufacture woolen carpets, in nice, usually light-colored, patterns. The carpets, which are dyed by means of vegetable colors, are usually sold at \$1.82 to \$2.43 per oke (2.84 pounds).

The silk industry is likewise in a favorable condition. The cocoon production has increased so considerably that part of these goods can now be exported, while for many years the supply has been so scanty that it was hardly sufficient for home consumption. The exports, as usual, go to France exclusively. They included last year 16,500 kilograms (36,376 pounds) of good raw silk, of a total value of \$159,225, which is equal to \$9.65 per kilogram (2.2046 pounds) free on board; 18,000 kilograms (39,679 pounds) of waste silk, valued at \$8,685; 15,000 kilograms (33,069 pounds) of cocoons, valued at \$31,845; the whole export amounting to \$199,755, against \$123,522 for the preceding year.

MINERAL DEVELOPMENT IN THE URALS.

Although the existence of valuable marble has long been known in the southern portion of the Ural Mountains, they have not been worked until within the past year. Two quarries, in which 150 workmen are employed, have been opened within 2 miles of the Samara-Zlatoust Railway, and considerable quantities of yellow, green, gray, black, and white marble have been taken out. The white marble is being used in the construction of the Alexander III Museum, at Moscow. The veins are said to be between 3 and 4 feet thick; but, owing to lack of improved methods, a large percentage of the marble is broken.

Green and brown jasper is also mined in the neighborhood of Zlatoust; the largest works are in the village of Medviedevo. This stone is used for tables, wash basins, handles for knives and forks, is susceptible of a high polish, and is equal to the well-known Ekaterinburg stone.

A colossal deposit of magnesium, containing 50 per cent of oxide of magnesium, has been found in the well-known "Votchia Gora" (Wolf's Mountain), within 5 versts (3.3 miles) of the railway. The remainder is acid carbonic calcium, dolomite, and grit stone. This mountain has been leased by the Government to private persons for twenty-four years.

Ten versts (6.63 miles) from the Sulea station, on the Samara-Zlatoust Railway, millstones and whetstones are worked, on a lease from Bashkir peasants, by a company at a rental of 10,000 rubles (\$5,150) per annum.

Iron and bog ore is mined in the same district, known as "Nikolski;" this had a good sale at the Nizhni Novgorod fair.

Copper ore is being mined by private companies near the Taganay Mountain.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *March 7, 1901.*

AMERICAN ADVERTISING MATTER IN RUSSIA.

Several American exporters, desiring to reach the trade in their respective lines in Russia, ordered catalogues and other advertising matter printed in New York in the Russian language and shipped them to Russia, to be addressed and mailed by agents in Russia; but they were refused admission because they had not complied with the Russian laws governing the censorship of the press, which requires that everything printed in the Russian language must receive the approval of the chief of the central committee of foreign censorship before it can be admitted or circulated in Russia.

American exporters who desire to circulate advertising matter printed in the Russian language in Russia must address a petition to His Excellency Count Alexander Mouravieff, chief of the central committee of foreign censorship, describing the character of the publication and its purpose, to which must be attached two copies of the publication for which admission is desired, praying for permission to admit and circulate the same in Russia. To this petition must be attached two Russian revenue stamps of the value of 1.60 rubles (84 cents), preferably two of 80 kopecks (42 cents) each. This petition will be more likely to receive immediate attention if written in the Russian or French language, though the same would

be translated and forwarded if sent direct to the United States ambassador or consul-general at St. Petersburg, if accompanied by the amount necessary to purchase the revenue stamps.

Incendiary matter has been circulated in every form in Russia; hence the authorities censor everything that is printed as rigidly as they did a century ago.

W. R. HOLLOWAY,
St. PETERSBURG, *March 12, 1901.* *Consul-General.*

AGRICULTURAL IMPLEMENTS IN RUSSIA.

As indicating the view taken here of the trade in agricultural implements in Russia, the following translation of an article published by the Chamber of Commerce of Ludwigshafen (a Bavarian city of 50,000 population separated by the Rhine from the city of Mannheim) should be of interest to our manufacturers of agricultural tools and implements.

H. W. HARRIS,
MANNHEIM, *March 14, 1901.* *Consul.*

TRADE IN AGRICULTURAL IMPLEMENTS IN RUSSIA.

The condition of the trade in agricultural implements in Russia has experienced a change worthy of the notice of those interested. The domestic manufacture begins to offer strong competition to the foreign wares, and a knowledge of local conditions and of the changed demand is of advantage to foreign dealers.

The manufacturer is bringing to his aid active agents familiar with the country, whom he sends into every region where machinery is known. Machine store-houses are quickly opened at small but well-located railway stations, and machines are shown, in actual operation, at the yearly fairs taking place in the surrounding region.

The usual form of sale is on credit. The purchaser either gives security or signs a contract of loan, by which all rights in the machine are retained by the seller. Losses in this trade are extremely rare. The extension of trade into new fields is, of course, for the most part closed to the smaller manufacturers; those of large capital are, on the other hand, in a position to become monopolists in certain localities, and to secure for themselves a steady enlargement of their market.

The native rural workshops, which have largely originated among the German colonists, furnish first of all the "Lobogreka," a simply built and cheap general-purpose mowing machine, and, in addition, grain-cleaning machines, horse powers, and plows, which last are not suited to the demands. The manufacture of other implements is very unsteady. The greater city factories furnish plows, seed drills, and mills for grinding feed, and they are bringing about, as is said, considerable hardship to the foreign manufacturers. To some extent, it appears, the plow market, in which Germany chiefly is interested, holds its own. The Russian farmers are, in great majority, against the native plow. The wish is universal to retain the somewhat dearer but approved German plow. It may fairly

be stated that we can hold the market for our goods by being on hand in good harvests with the necessary supply.

In drills, machines for sowing broadcast, horse powers, and different cleaning and feed-grinding mills, the German wares likewise hold their ground.

In mowing and grain-binding machinery, the United States controls; in steam thrashing machinery, England controls.

France furnishes tools for the wine industry, and Austria-Hungary special machines for root crops. England maintains in Russia warehouses adapted to supply large demands.

The greatest difficulty is the necessity of giving credit.

To give to the native commission house the agency for goods is an expedient which the present condition of business does not wholly favor.

If factories can arrange for the establishment of their own agencies, this is undoubtedly the better course; in any event, they should go into the business only if they are able to satisfy all reasonable requirements, otherwise the reputation of their goods is injured for a long time.

The principal task will consist, in southern and middle Russia, in establishing direct connections and in extending as far as possible the provincial retail business; in eastern Russia and Siberia, on the other hand, the principal task is to secure a more extended market.

The German machine manufacturer has the advantage over the Russian manufacturer in better raw material and neater workmanship. For the great Russian business, he must bring both into requisition in the simplest possible models. Then we should take pains to hold our position in the making of special machines. For these, the market is broadening year by year.

MERCHANT MARINE OF RUSSIA.

The Russian merchant marine has developed rapidly of late. A few years ago, the merchant fleet consisted of a very few steamers and about 200 Finnish sailing ships, employed almost exclusively in the Baltic wood trade; to-day, more than 3,050 steamships (including river steamers) are flying the Russian flag on their after-deck staff. The Government is keenly alive to the value of a merchant marine and only recently enacted a law limiting its coast trade to its own bottoms. This ukase covers the trade between European Russia and Asiatic Russia, but, owing to the heavy war demand in Asiatic Russia, that part of the territory is temporarily exempt from this decree; but just as soon as this demand ceases, it is certain that the exemption will be withdrawn and the coast-trade law strictly enforced. Shortly before this decree went into effect, the Union Steamship Company, of Copenhagen, put seven steamers, aggregating 18,000 tons, under the Russian flag, these being employed in the Baltic and Black Sea trade.

Government aid is not confined to such laws. For several years Russia paid all the Suez Canal dues on her bottoms bound from European Russia to ports in Asiatic Russia, and on steamers bound

to an Asiatic foreign port the Government pays two-thirds of the canal dues.

For a period of ten years, commencing July 1, 1898, anchors, chains, wire cable, and sailing-ship tackle are admitted duty free into Russia.

From January 1, 1899, foreign-built iron vessels, imported in the whole and intended for external navigation, are duty free; likewise, all vessels in service on the Danube under the Russian flag.

Foreign-built iron ships, imported in the whole, put under the Russian flag and intended for service on the lakes, rivers, Caspian Sea, and ports on the Russian Pacific coast, pay the following duty per ton, based on the ship's carrying capacity:

	Rubles.
On the first 100 tons.....	57= \$29. 35
From 100 to 1,500 tons..	30= 15. 45
Above 1,500 tons.....	15= 7. 23

In addition to the above fees, a duty of 4.50 rubles (\$2.32) per square foot on the boiler-heating service is assessed. The value of such Government aid is very apparent. Many new steamship companies are springing into existence; for instance, the Russian Orient-Asiatic Company and the Russian Steamship Company, which is the most important, having a fleet of 65 steamers. The Volunteer Fleet is also an important company, having 6 large express passenger steamers and 10 freighters, aggregating 96,000 tons, and having added thereto within the last year a 14,000-ton freight steamer called *Moscow*.

JOHN E. KEHL,
Consul.

STETTIN, *February 15, 1901.*

AMERICAN LOOM IN AUSTRIA.

Austria-Hungary shows considerable and growing interest in an American loom—the Northrop—which, with less manual aid, produces greater results in weaving than any previous device. So far as I am aware, the Northrop loom is not yet in operation anywhere in this country, but a start in that direction has been made. A joint-stock company has been organized in Hungary for manufacturing the loom at Rosenberg, with arrangements for also furnishing the machine to Austria.

A recent session of an industrial organization in southern Austria listened to an address by a Government official which has greatly stimulated and extended the interest felt in the Northrop invention, the address being widely published. The speaker emphasized the

statement that while, under present methods, one weaver can attend to only two to four looms, the American invention enables one weaver to serve at the same time from ten to sixteen—even from twenty-four to thirty-two, and possibly still more—of the swiftest cotton looms. A weaving factory equipped with these machines, said the speaker, can double and triple its rate of wages and sell better goods at the same price as that asked by factories using the old methods, and yet continue to do a profitable business. The speaker then gave a detailed description of the Northrop loom, explaining its remarkable superiority over the old weaving machines.

FRANK W. MAHIN,

REICHENBERG, *March 6, 1901.*

Consul.

AMERICAN MILL MACHINERY FOR TURKEY.

Capital has been enlisted for the introduction into the vilayet of Mamouret-ul-Aziz of flouring mills and of mills for spinning and weaving the simpler cotton fabrics. It is desired to secure American machinery for this purpose. At present, wheat is ground by primitive methods. The cleaning of the cotton is likewise effected in a very primitive manner.

While the vilayet produces an abundant supply of cotton (about 5,000 short tons per annum), the woven tissues are imported almost exclusively from Manchester.

There is an abundance of water power for milling purposes.

I would request American manufacturers of cotton gins, machinery for cotton mills (including full installation), and machinery for flouring mills (including installation) to send to this consulate their descriptive price lists.

In these catalogues, attention should be directed more particularly to the simpler mechanical devices, which can be conducted by low-grade workmen and can be most easily repaired in a country destitute of skilled mechanics and modern appliances.

Lowest net prices should be indicated, including satisfactory packing for a long journey, involving a fortnight's constant jolting. It would be advisable in subsequent communications to give net prices for the simpler types above mentioned f. o. b. Samsoun—*i. e.*, via the English direct lines, transshipping at Liverpool.

THOMAS H. NORTON,

HARPOT, * *February 25, 1901.*

Consul.

* Consul Norton gives his post-office address: Mezreh, Mamouret-ul-Aziz, Turkey.

USES OF TURF FIBER.

In a former report from this consulate, the use of turf for paper making was noticed.* Late current publications show an extended and increasing use of turf fibers in the production of various other articles.

The early experiments with turf—some ten years ago—were unsatisfactory. The fibers then obtained were not good spinning material, being hard and brittle and not easily bleached or colored. Later, a civil engineer named Zschörner, in Vienna, succeeded in extracting threads from turf which proved to be good spinning material. He worked by a dry process, unaided by chemicals, and succeeded in producing a kind of wool which, though not adapted to the spinning of fine yarn, is yet so flexible and elastic that large fabrics can be made therefrom. It is characterized also by great absorptivity, is a poor heat conductor, does not burn readily, and is moderately firm and very cheap.

Zschörner next produced turf wadding. This is used as bandages for men and animals, in cases of wounds and the like, and also as a filling for pillows and bed coverings. Then he wove turf yarn into ropes and rugs. The remnants which resulted served for the production of paper and pasteboard.

Karl Geige, in Düsseldorf, has gone still further. He has secured from turf fiber a fine spinning material, which has absorptivity and which also may be bleached or colored. After extracting the vegetable substance, Geige treats it with acids and alkalies, and then boils the resulting liquid, whereby the cells are disorganized and useless substances released and washed out, so that the turf wool consists of almost pure cellulose.

It is affirmed that the Geige turf wool is soft and elastic, with all the good properties of rival products, and in its spinning capability resembles sheep's wool. Clothing materials and different kinds of yarn are made out of this turf product in combination with cotton or sheep's wool. Turf cloth, it is claimed, absorbs perspiration in summer and is warm in winter; felt hats are made out of the turf wool. It is further stated that Geige makes Smyrna and other rugs out of turf wool, which are bleached and colored. In addition to all this, the Geige turf wadding, it is maintained, is not only a cheap, but a very useful, bandage material, because it readily absorbs the secretions of wounds, which are therefore kept always dry and

*ADVANCE SHEETS No. 807 (August 14, 1900); CONSULAR REPORTS No. 241 (October, 1900).

clean. It is further recommended as a substance for laying under very ill persons and as a padding for splints.

If all that is told of this material is true, it will vanquish the old-time sheep's-wool stuffs in the textile field.

FRANK W. MAHIN,

REICHENBERG, *March 5, 1901.*

Consul.

INSURANCE IN ANATOLIA.

The attention of American life-insurance companies might be directed to the field open for their operations in Anatolia.

As an example, I might state that one prominent American company recently established its agency at Mezreh, the capital of this vilayet. Within five months, ninety-two policies have been issued—sixty-two in the cities of Mezreh and Harput, thirty in the neighboring city of Malatia. Twelve per cent of those insured are Turks; the remainder are Armenians.

The average amount of the policies is \$1,000.

Much of this success is due probably to the fact that the company's physician for this vilayet is a competent and energetic graduate of the American Medical College at Beirut.

Experience here would tend to show that the results would be notably increased, if the forms of the policies were accompanied by duplicates in Armenian.

This is the first and only life-insurance company operating in this vilayet. It is now arranging to extend its operations to the adjoining vilayet of Diarbekir.

The only formality required on the part of the Government authorities is the presentation by the agent of a document from the Constantinople Chamber of Commerce, certifying to the authenticity of the signature of the general agent of the company at Constantinople and to the financial standing of the company.

Fire-insurance companies would find but little to do. The adobe construction prevalent here renders conflagration exceedingly difficult. It is several years since Mezreh has witnessed the burning of a house.

Earthquake insurance might encounter more favor. Eight years ago, the city of Malatia was almost entirely destroyed by a severe shock. A slight shock was felt in this consulate the week following its opening.

THOMAS H. NORTON,

HARPUT, *February 28, 1901.*

Consul.

CHARCOAL PRODUCTION AND RECOVERY OF BY-PRODUCTS.

In compliance with a request from a resident of Michigan* a Department instruction was sent, November 20, 1900, to consular officers in Germany, Norway, and Sweden, asking for information relative to charcoal production and by-products. The answers follow.

GERMANY.

Coincident with the development of coke manufacture in Germany by the use of retort ovens which recover the ammonia, gas, tar and its valuable derivatives that are wasted by the primitive "beehive" oven process, has been the improvement in methods and apparatus for wood distillation, through which the production of charcoal has been raised from the archaic, wasteful, earth-kiln process that recovered only charcoal and tar to an intelligent, scientific system, by which every valuable element in the wood is saved and added to the wealth-producing power of the forests. So far has this been carried that special patented processes have been devised for using even sawdust and the rough outer bark of trees as material for the manufacture of charcoal and other products.

The apparatus for wood distillation, which will be briefly described in a later section of this report, includes cast and plate iron retorts of various types, as well as ovens of masonry, together with pipes, coils, tanks, and pans for condensation and rectification of the several distillates and utilization of the gases. Retorts are heated either by direct firing from beneath or by superheated steam introduced in coils. Retorts with direct heating by fuel or gas flame are most in use, and they are of two general classes—the horizontal and vertical.

I.—THE PRODUCTS OF WOOD DISTILLATION

form four primary groups, which, with their principal derivatives, may be synopsized as follows:

- (1) Uncondensed gases, which may be burned as fuel or, after certain treatment, used for illuminating purposes.
- (2) Tar, from which are derived benzol, naphthalene, paraffin, rosin, and phenyl acid (creosote).
- (3) Pyroligneous acid (wood vinegar), from which are derived acetic acid, acetone, and methyl, or wood, alcohol.
- (4) Charcoal.

*ADVANCE SHEETS have been sent the inquirer.

The quantities of these several products which can be obtained from the distillation of a certain quantity of wood vary considerably according to the species or kind of timber used, its dryness, and especially the time consumed by the process of distillation, it being a general principle that, within reasonable limits, slow distillation yields larger percentages of distillates than are recovered when the process is quickened. All this has been reduced to exactly demonstrated results by the German chemists, and these have been tabulated by Professor Fisher in his Chemical Technology to show the comparative yield, by slow and quick distillation respectively, of the seven species of wood that are most employed for charcoal manufacture in Germany. The table shows for each kind of wood two lines of figures, the first of which (slow distillation) shows the products obtained when the wood was put into a cold retort and heated for a period of six hours; the second line (fast distillation) shows the results when similar wood was put into a glowing retort and exposed to a fierce heat for a period of three hours.

Wood, 100 parts.	Total distillates.	Tar.	Hydrated wood vinegar (raw).	Pure acetic acid.	Charcoal (dry).	Uncondensed gases.
Hornbeam (<i>Carpinus betulus</i>):						
Slow distillation.....	52.40	4.75	47.68	6.43	25.37	22.21
Fast distillation.....	48.52	5.55	42.97	5.23	20.47	31.04
Birch (<i>Betula alba</i>):						
Slow distillation.....	51.05	5.46	45.59	5.63	20.64	19.71
Fast distillation.....	42.98	3.24	39.74	4.43	21.46	35.56
Beech (<i>Fagus sylvatica</i>):						
Slow distillation.....	51.65	5.85	45.80	5.21	26.60	21.66
Fast distillation.....	44.35	4.90	39.45	3.86	21.90	33.75
Poplar (<i>Populus tremulus</i>):						
Slow distillation.....	47.44	6.90	40.54	5.10	25.47	27.09
Fast distillation.....	46.36	6.94	39.45	4.36	21.33	32.31
Oak (<i>Quercus robur</i>):						
Slow distillation.....	48.15	3.70	44.45	4.08	34.68	17.17
Fast distillation.....	45.24	3.20	42.04	3.44	27.73	27.03
Larch (<i>Larix decidua</i>):						
Slow distillation.....	51.61	9.30	42.31	2.69	26.74	21.65
Fast distillation.....	41.77	5.58	36.19	2.06	24.66	32.17
Spruce (<i>Picea excelsa</i>):						
Slow distillation.....	46.92	5.93	40.99	2.30	34.30	18.78
Fast distillation.....	46.35	6.20	40.15	1.78	24.24	20.41

These figures show the yield in pure, dry charcoal, which, on exposure to the air, absorbs moisture to an extent of from 4 to 10 per cent of its weight, according to the kind of wood from which the charcoal was made. Of the above varieties, the English hornbeam is practically similar to the "blue beech" (*C. Americana*) of the United States; and the beech, birch, and spruce are so nearly identical with American woods of the same name that the foregoing table of distillates will be found substantially correct for the woods

mostly employed for charcoal manufacture in our country. It will be seen that the charcoal yield is about one-fourth of the entire weight of wood, the total distillates one-half, and the greater portion of these is hydrated wood vinegar, which in its crude form contains about 12 per cent of crystallized acetic acid.

II.—NATURE AND USES OF THE SEVERAL DISTILLATES.

Taking up these several by-products in their order, the second in commercial importance is probably the wood tar, which is found more or less in all kinds of timber, but most plentifully in the larches and other conifers.

A.—The tar products.

Wood tar is composed mainly of several hydrocarburets, the most important of which have been isolated as follows: Benzol (C_6H_6), toluol (C_7H_8), xymol (C_8H_{10}), cumol (C_6H_{12}), naphthalene ($C_{10}H_8$), and paraffin ($C_{20}H_{42}$); all of which are chemically neutral, besides the following acids: Phlenic acid (C_6H_6O), kresylphenol (C_7H_8O), and phenyl acid ($C_8H_{10}O$). Some of these have only a scientific interest and need not be separately discussed in a report of this character. The tar which contains them is expelled from the wood at temperatures exceeding 360° Celsius. The higher the temperature and the more rapid the process of distillation the greater the percentage of tar and gas produced and the smaller the yield of acetic acid. The tar obtained as a by-product of charcoal manufacture from hard woods is mainly used for the production of creosote and applied to the antiseptic treatment of wood, such as posts, railway ties, paving blocks, etc., to protect the fiber against decay. When used as a raw material for producing any of the above-named hydrocarburets, that forms a separate chemical industry. The best known of them are—

Benzol, which boils at 82° Celsius and has a specific gravity of 0.85.

Toluol, which boils at 111° Celsius and has a specific gravity of 0.87.

Xymol, which boils at 139° Celsius and has a specific gravity of 0.875.

Cumol, which boils at 166° Celsius and has a specific gravity of 0.887.

Cymol, which boils at 175° Celsius and has a specific gravity of 0.85.

By reason of these sharply defined characteristics, they can be rather easily separated, and when treated with ammonia produce bases which, being oxidized, yield aniline colors. Industrially, however, anilines are mainly produced from the cheaper benzol

and other derivatives from coal tar. The principal value of these elements when derived from wood tar is that they serve for a vast range of interesting researches for new and valuable shades of colors. Naphthalene and paraffin are the hydrocarbons which occur in small proportions in wood tar. Naphthalene is converted by treatment with nitric acid into nitronaphthalene, from which is obtained naphthylamin, an important material for the production of certain red and yellow aniline dyes.

The paraffin in wood tar is characterized by a remarkably high smelting point— 360° to 400° Celsius—and is of small industrial importance, for the reason that it can be obtained so much more abundantly and cheaply from coal tar. Of the oxidized, and therefore acid, combinations in wood tar, phlorol and kresylphenol have been isolated and have a certain scientific interest. Both these contain carboic acid (C_6H_7O), and all are usually left in the liquid creosote, which is used as an antiseptic for the impregnation of wood to prevent decay.

B.—The acid products.

By far the most important by-product of wood distillation in charcoal manufacture is the pyroligneous acid, or wood vinegar, which in its raw state, as it comes from the still, is an impure hydrated solution ($C_2H_4O_2$), a colorless, inflammable liquid, with a sour, pungent smell and, as already stated, 12 per cent of pure acetic acid. It boils at 117.3° Celsius and at 4° the acid solidifies in laminated crystals which fuse at 16° C. From the table on a preceding page of this report, it will be seen that the yield of pure acetic acid is highest in the hard woods, viz, 6.43 per cent in blue beech, 5.63 per cent in birch, and 5.21 per cent in white beech, whereas the larch yields only 2.69 per cent and spruce 2.3 per cent under slow distillation. Pure acetic acid is derived from raw wood vinegar by several processes, the simplest of which is as follows:

The raw distillate is first left standing for a certain time to permit the tarry elements which it contains to separate by settling. The clarified liquid is then put into a retort, with rectifying apparatus attached, and heated until the methyl alcohol and other light and volatile elements are expelled and pass over into a distillate, which is reduced by subsequent processes to alcohol and acetone, as will be elsewhere described in this report. The heating is continued until the areometer shows a specific gravity of 1,000, indicating that the lighter elements have been eliminated. The acid solution is then drawn off and neutralized with a base—usually lime or soda. This takes up the acid forming an acetate, which, on being decomposed, yields acetic acid. The cheapest base for this process is

limestone, but it should be pure, or as nearly as possible free from organic impurities, which would, until eliminated, injure the quality of the acetate.

Acetic acid is sufficiently powerful to expel the carbonic acid in limestone, but the neutralization process causes thereby a strong effervescence, so that it must be accomplished in large, deep tanks in which the effervescing mixture will not boil over. If, instead of limestone, pure burnt lime is used, the effervescence is greatly reduced; but in either case it is important that the amount of basic material should not be in excess. In other words, it should be just sufficient to neutralize the acetic acid—which it does first—and not enough to take up afterwards the acid elements of the tar, which, being lighter than the acetate of lime, rise to the surface during the reaction and should be removed by skimming. The clarified solution is then evaporated in large shallow pans, yielding as a residuum crude acetate of lime. Overheating during the evaporation decomposes the acetate, so that a slow, steady, and uniform heat is necessary, and for this purpose the off-gases from the retorts in which the wood is distilled are used whenever practicable. The crude residuum is a gray, odorless mass, containing about 75 per cent of pure calcium acetate, and forms a standard article of commerce. It is purified by dissolving in water, filtering the solution through bone black, and concentration by evaporation to a specific gravity of 1.16, when the salt crystallizes in small odorless needles, which are principally used as material for the production of acetone.

Acetate of lime appears in commerce in three grades of purity, the highest of which is now worth in large quantities 2.50 marks (60 cents) per kilogram (2.2046 pounds); the medium grade, 40 cents; and the lowest, 33 cents per kilogram. Its growing importance as a commercial product will be inferred from the fact that the exports of acetate of lime from Germany in 1898 were 8,529,300 kilograms; in 1899, 10,005,700 kilograms; and in 1900, 15,378,600 kilograms (33,295,000 pounds), of which last 1,382,140 pounds went to the United States.

When soda is used as the neutralizing base, the product is acetate of soda, and the process throughout is in general similar to that when lime is employed. The acetate of soda has various uses, but its crystals disintegrate when exposed to the air, and for this and other reasons it is less important in Germany than acetate of lime. Both are used as a means of extracting acetic acid from the raw wood vinegar, after which they are decomposed by various processes to obtain the crystallized acetic acid. When pure acid is to be obtained on a large scale, the soda acetate is preferred, as the acetic acid obtained from calcium acetate contains impurities which are

difficult to eradicate. In either case, however, the acetate is decomposed by the action of a mineral acid sufficiently powerful to displace the acetic acid from combination with the base, by which process the former is isolated.

Pure acetic acid is used for many purposes, among others making edible vinegar. When prepared for this use, it must be carefully cleansed from empyreumatic impurities, which give it a disagreeable, smoky flavor. This is accomplished by decomposing crystallized or freshly molten anhydrous acetate of soda by the admixture of 36 parts to 100 of sulphuric acid, which yields 80 parts of acetic acid of 54 to 55 per cent purity, and this is further purified by dissolving in water, distilling, and rectifying. The process leaves as a residuum bisulphate of soda, which it requires a complicated process to utilize, and the distillation has to be performed in glazed or silver-lined retorts and cooling tubes in order to prevent the acetic acid from becoming contaminated with iron or copper. The resulting product, known in commerce as "essence of vinegar," can be made into table vinegar by dissolving in twenty times its volume of water. Of the

C.—Direct derivatives from the acetic acid

the most important is acetone (C_3H_6O), a colorless liquid which is used as a solvent in aniline and several other branches of chemical manufacture, especially in the production of smokeless powder and other explosives. Acetone is obtained by separating acetic acid into three elements—acetone, carbonic acid, and water. For this purpose the acetic acid is neutralized with lime, and the acetate thus formed is heated in a retort with a stem leading to a coil condenser. On account of the low boiling point of acetone ($56^\circ C.$), this coil must be kept at a very low temperature to produce complete condensation. In the industrial process, the acetate of lime is dried, finely pulverized, and then put into the retort, where it is heated until the acetone has all passed over, when the residuum is withdrawn and again used for making fresh acetate of lime, with which the operation is repeated. Acetone of 56° to 58° purity is now worth about 50 cents per kilogram (2.2046 pounds), and, like acetate of lime, is a standard commercial product. It may be further decomposed and yields metacetone ($C_6H_{10}O$), a fragrant aromatic liquid which boils at $84^\circ C.$ and is used as a solvent for essential oils in the manufacture of perfumes.

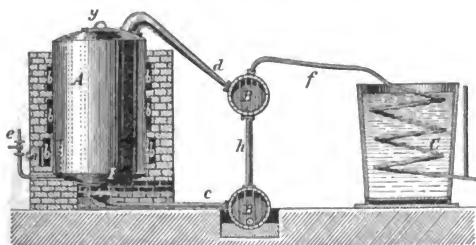
The next valuable derivative from acetic acid is wood spirit or methyl alcohol (CH_4O), called in German "Holzgeist," a colorless, volatile, and inflammable liquid which boils at $66.3^\circ C.$ and has a specific gravity of 0.800. It burns with a bluish flame of low illuminating power, dissolves resins, gums, and essential oils, and is

extensively used in the manufacture of lacs and varnishes and for the denaturalization of spirits which are to be used for industrial purposes. The exports of wood alcohol from Germany in 1899 amounted to 6,703,620 pounds, valued at \$662,354.

Among the other useful products of wood distillation is oxalic acid, an important substance in dyeing and cloth printing which was formerly prepared by oxidizing sugar, but is now much more cheaply obtained from sawdust by the action of alkalies.

III.—APPARATUS FOR WOOD DISTILLATION.

Since the commencement of wood distillation as a practical industry nearly fifty years ago, many changes and improvements have been made in the machinery employed, which for economical practice requires to be adapted to the kinds of wood to be worked, the quantity to be treated at each operation, and to which of the distillates, tar or acid, is regarded of first importance. Wood is a bad conductor of heat, so that, in the construction of all retorts, the problem is to secure as prompt and thorough a distribution of heat as possible throughout the mass, combined with such dimensions as will render the charging of the retort with wood and the withdrawal of the charcoal reasonably convenient. All plants for wood distillation combine substantially the features which are shown in the following model, which is a simple, upright retort, with a capacity of 8 cubic meters (about $2\frac{1}{2}$ cords) of wood.



In this figure, the retort *A* is made of ordinary or galvanized boiler plate, set in brick masonry, with a spiral flue *b*, so that the fire introduced at the furnace *a* is drawn by the chimney draft round and round the outer shell of the retort, which is filled with wood and the charcoal discharged through the manhole *y*. To quicken the heating of the charge to 100°C .—at which temperature the development of gases begins—superheated steam is turned in through the pipe *e*. The crude inflammable gases which are first generated are discharged downward into the fire through a pipe not shown: in the

drawing. As the heat increases, the steam and gas pipes are closed and the distillates begin to pass over. The tar flows downward through the pipe *c*, the acid gases pass upward through the beak *d* into the drum *B*, where the tarry vapors condense and are carried downward to the tar tank (lower *B*), which is kept cool by partial immersion in water. The pyroligneous acid gas, nearly freed from tarry impurities, passes on through *f* and the cold coil *C*, where it is condensed and pours out in the form of raw wood vinegar. These are the rudiments of the process.

In anticipation that the European process of making charcoal with recovery of the tar and acid products might have a practical interest for charcoal manufacturers in the United States, an engineer familiar with this industry has been consulted, and he has obtained from several German manufacturers of apparatus and fixtures for these purposes estimates of the cost of equipment for a plant of the standard capacity, viz, 75 cubic meters (2,649 cubic feet) of wood per day. In practice, it has been found most economical to set up the distillation plant as near as possible to where the wood is cut; in other words, at the point where all conditions of transportation for raw material and products are most favorable. The ordinary practice involves the distillation of hard woods—beech or oak—and the recovery of charcoal, tar, raw wood vinegar, and methyl alcohol. The charcoal, or first product, is ready for market on being withdrawn from the retort. The tar is sent as raw material to chemical factories, where it is worked up as a separate industry. The methyl alcohol is also a commercial product and is usually sold in its crude state; but the wood vinegar is usually consumed on the spot for the production of acetate of lime, which, as already explained, is a convenient vehicle for recovering and transporting the pure acetic acid contained in the wood vinegar, which for this purpose is treated with ordinary limestone. Assuming, therefore, that a firm or company in the United States should wish to establish a modern German plant of this kind, and for that purpose to obtain the necessary machinery in this country, the calculation would be somewhat as follows:

Distilling apparatus complete, without buildings, for treating 75 cubic meters ($22\frac{1}{2}$ cords) of wood per day, would cost here 105,000 marks (\$24,990). If the capacity were increased to 100 cubic meters (30 cords) per day, the cost of plant would be about 130,000 marks (\$30,940). If greater capacity is desired, it would be advisable to duplicate the same apparatus, instead of further increasing the size of the unit.

If beech wood is used, the raw vinegar obtained will be from 40 to 45 per cent of the weight of wood, and the vinegar should yield from 9 to 12 per cent of pure acetic acid. Assuming that this is to

be recovered on the spot, a plant for the daily production of 1,200 kilograms (2,640 pounds) of acetate of lime would cost, exclusive of buildings, about 15,000 marks (\$3,570). This assumes that the raw pyroligneous acid is to be treated with ordinary limestone, a process which involves no technical difficulties. So far as can be ascertained, the apparatus for the industry involves few or no essential features which are covered by patents, so that a modern scientific plant, once established and its success demonstrated, could be duplicated to any extent which supply of material and the market for its products might require.

FRANK H. MASON,
Consul-General.

BERLIN, *March 5, 1901.*

NORWAY.

No regular or permanent plants for the production of charcoal exist in Norway. The article is produced in a small way in different localities by proprietors of forests, principally by farmers. For the purpose, all sorts of waste wood, such as branches, roots, and decaying trees, are utilized. The process is primitive, the wood being placed in covered trenches and exposed to slow fire. I have in vain tried to obtain an estimate of the cost of production. The wages paid and the material used vary in the different sections. The market price is 1.60 kroner (42.8 cents) per hectoliter of 15 kilograms (33 pounds) in weight.

Vegetable tar is, to a limited extent, produced in some districts on the west coast, but not enough for home consumption, as the article is largely imported from Sweden, Finland, and even from the United States of late. The market price of vegetable tar in this market is 22 kroner (\$5.90) per barrel of 120 liters (31.7 gallons).

The principal by-product from wood, as utilized here, is oxalic acid, which is manufactured by one concern only, namely, the J. N. Jacobsen Company, of Fredrikstad. The process of manufacture is of German origin and is patented and closely guarded against infringements. The plant was started only a few years ago and is giving promise of good financial returns. It is run in connection with sawmills and a wood-pulp factory.

I am informed that a plant for the production of vinegar, or acetic acid, from wood was operated in the neighborhood of Fredrikstad a few years ago, but was discontinued, the undertaking proving unprofitable.

Alcohol is not extracted from wood in this country.

HENRY BORDEWICH,
Consul-General.

CHRISTIANIA, *December 10, 1900.*

SWEDEN.

The utilization of by-products from wood in charcoal is merely an experimental industry at present. I mention the following persons who are engaged in the matter:

Gust von Heidenstam, Skönvik.

I. E. Ljungberg, Stockholm.

I. E. Åslin, Gemån.

The quantity of charcoal obtained from a cord of wood is difficult to determine. The burning of charcoal is carelessly done, and results are so varying that it is misleading to give figures.

EDWARD D. WINSLOW,

STOCKHOLM, *January 9, 1901.*

Consul-General.

IMPROVEMENT IN WELSBACH GASLIGHTS.

The Welsbach light really became a commercial lighting factor for the first time when Dr. Carl Auer von Welsbach some ten years ago brought out what is called the thoria-ceria mantle, which is composed of about 99 per cent of thorium oxide and 1 per cent of cerium oxide. This mixture, in which the thoria is the light-emitting member and ceria the exciter, as it is called, greatly exceeds in light-giving efficiency any of the other mixtures of zirconia, yttria, lanthana, magnesia, etc., which form the basis of mantles made under the earlier Welsbach patents. Naturally, in the invention of an illuminant, the first importance must be given to getting the light; but once this was secured, the inventors and manufacturers began to turn their attention to improving certain features of the mantle which are not of the same highly satisfactory quality as the light emission.

The features which have been particularly the subject of almost endless experiment are the mechanical strengthening of the almost hopelessly weak ashlike structure itself, the prevention of the rapid diminution of the intensity of the light due to the sublimation of the ceria, and the deformation of the mantles due to shrinkage, which fault is to be laid to the thoria itself.

Of course, the chemists busied themselves with the problem of the purification of the constituent materials, and all sorts of attempts were made to better the original ghastly greenish color of the light. Successful chemical purification removed almost entirely the objectionable color and cleared the field for investigation along the other lines; but, despite the legions of patents in all

countries and the extravagant claims of inventors, the thoria-ceria mantle, with all its good and bad qualities, holds the market to-day. Inventors succeeded in exorcising certain of the evil spirits, but usually with the introduction of other and equally sinister demons of their own conjuring.

The manufacturers, on their part, greatly improved the methods of treatment, packing, and shipping of their products, and burners of cheaper and better construction gradually appeared in the market, with the result that the incandescent gas-burner in all its features became standardized and accepted to such a degree that only a new and radically improved method, which should eliminate one or more of the recognized defects of existing mantles, could command any substantial success.

Such a departure has now been made by Mr. Rudolph Langhans, an Austrian engineer resident at Berlin, who has discovered and perfected a chemical complex, which, when added to the thoria-ceria mantle, converts it from a loose, weak ash structure, scarcely able to sustain its own weight, into an elastic glass, wherein the constituents are chemically combined and not merely mechanically piled together. This chemical binding makes the mantle not only stronger, but it holds the ceria to its work and thereby maintains the constancy of the light emission; and by one of those freaks of fortune that sometimes favor the inventor, it paralyzes the shrinkage tendency of the thoria. So with one stroke, the mantle becomes many times as strong, not to the extent of resembling a wire gauze, but strong enough to withstand use on railway trains; it keeps its candlepower so that after four months of normal usage, it is brighter than an ordinary thoria-ceria mantle after a few hours burning. The shrinkage interests the consumer only indirectly, its effect being to bring the mantle out of the hottest part of the flame and thus help to reduce its candlepower.

The chemical complex which effects this transformation is the silico-zirconate of an alkali—for example, soda—which enters the mantle and unites to form a complex double compound having the nature of a glass, the thorium replacing a portion of the alkali and the cerium also entering the compound, so that the result chemically expressed is a seriated silico zirconate of thoria and soda.

However, the compound, as stated, is not necessarily good, but becomes so when the molecular relations of the elements are so adjusted that for each molecule of silicon one molecule of zirconium is present; in other words, the molecular relation of the two acid compounds silicon and zirconium must be closely 1 to 1. This complex is not made separately and added to the complete mantle by dipping the latter in a solution of the former, or any such way; it is formed

in the mantle when the latter is made, being added to the thorium-cerium impregnating solution.

A curious phase of this advance is that both silica and zirconia have been used before in mantles, but to no useful purpose, as the former will not unite with the thoria of the mantle unless the alkali is present, and, when used alone by itself without zirconia, gives mantles that almost invariably split open from top to bottom either in manufacture or use. Zirconia by itself serves no useful purpose, its presence being only corrective to the faulty action of the silica and only properly corrective when the molecular relation 1 to 1 is maintained—too much zirconia causing shrinkage, too much silica splitting.

When once the constituent materials of the mantle are chemically united, further slight improvement can be effected by introducing other elements into the complex—for example, the brittleness in extreme cold weather may be reduced by adding a properly adjusted amount of beryllia and the color and light improved by a slight addition of cobalt. In fact, the door is opened to the correction of minor defects now for the first time given consideration.

The life of these mantles in service is from one thousand eight hundred to two thousand hours. The candlepower at the end of six hundred hours, under conditions of quality and pressure of gas such as are found at Berlin, is as high or higher than the candlepower of a thorium-cerium mantle burning under the same conditions for fifty hours.

As regards shrinkage, this factor is practically eliminated from the new mantle, whereas the thoria-ceria mantles shrink and form what is technically called a "waist" just above the burner after a few hours' duration. Another of the peculiar properties of the new mantle is that during the first ten or twenty hours of use it actually increases in candlepower, whereas the maximum luminosity of the thorium-cerium mantle is at the moment when it is first lighted.

By reason of their increased mechanical strength, the new burners will be applicable under conditions where hitherto no mantle gaslights have been used—for example, in railway cars and other positions where strong vibration is unavoidable—also all forms of lighting in which gas is burned under excessive pressure and systems in which extra-large mantles are used. This new departure will be of the greatest value, as its increased mechanical strength will materially prolong the life of these mantles, which at present is excessively short and constitutes the main objection to their use. In the manufacturing stage as well, the great strength of the new mantle reduces by 10 per cent or more the loss resulting from breakage. The cost of manufacturing is not increased, as the slight extra

expense necessary to carefully adjust the proportions of the mixture is more than compensated by the decreased weight of the mantle itself. Experiments are at present in progress to determine the exact life and characteristics of the new mantles as applied to the comparatively rich American gases, and, so far as they have been conducted, they do not show any marked difference, and there is no reason to suppose the mantle will not be as applicable to American conditions as to those of Germany.

FRANK H. MASON,

Consul-General.

BERLIN, *March 22, 1901.*

ELECTROLYSIS IN BLEACHING TEXTILES.

The application of electricity to manufacturing processes has long occupied the attention of scientists and inventors. Every effort has been made in recent years to simplify and cheapen the cost, not only of the necessary machinery, but of chemical elements as well. Dr. Oettel, a German professor, together with Haas & Stahl, electricians in Aue, Saxony, has invented an apparatus for producing "chemic," or bleaching liquor, out of ordinary brine, the product being sodium hypochlorite, which is attracting considerable attention among textile manufacturers. It is claimed that the chemic obtained by this method produces a whiteness superior to that of the English bleaching liquor.

The following detailed description of the invention and its improvements may be of interest to the textile manufacturers of the United States:

The ordinary apparatus is extremely simple (see Fig. 1), being mainly a trough or box of slate, swung on trunnions, in a suitable frame, with an inlet for the brine and an outlet for the sodium hypochlorite resulting from the passage of a current of electricity through the brine as it runs through the box, the poles or electrodes being placed at opposite ends of the box, as shown by the engraving. Thermometers are suspended at the inlet and at the outlet, in order to show at a glance the strength of the sodium hypochlorite, it having been found that every rise of 5° Celsius corresponds to 1 gram of free or active chlorine per liter (equal to 62 grains per gallon).

In order to clean the apparatus, the thermometers are removed and the trough reversed and cleansed with a hose pipe. The electrodes last about one year and can be easily replaced. The bleaching liquor, the product of the apparatus, is eminently suitable for bleaching raw cotton, yarn, cloth, lace, and the finest embroidered

fabrics made of cotton, linen, jute or flax, pulp, paper, etc. It advantageously replaces chloride of lime for all purposes.

The advantages claimed for this system are—

(1) The electrolyzed solution possesses the highest decolorizing or bleaching power.

(2) The goods treated in the ordinary process of bleaching are not harmed in the least, and there is scarcely any appreciable loss in weight.

(3) Lime or magnesia salts are not deposited on the cloth, thereby eliminating any possible trouble in subsequent dyeing and printing.

(4) Constant strength of liquor, which can be used as fast as made, if desired.

(5) Economy in cost of production.

The apparatus is constructed in three sizes, to produce, per 10 hours, respectively, 350, 650, and 1,000 gallons of electrolyzed solution, containing 3 grams per liter (equal to 186 grains per gallon) of active chlorine, prepared from brine of a strength of 6° Baumé.

For purposes of comparison, we may say that 650 gallons of the electrolyzed solution contains 20 pounds of active chlorine; to obtain from chloride of lime 20 pounds of active chlorine, it would be necessary to use 70 pounds of bleaching powder, and the resulting 650 gallons would be found to give considerably inferior results. The reason of this apparently inexplicable difference lies in the constitution of the electrolyzed liquor, which has been found to contain the following: Free chlorine, free hydrochlorous acid, sodium, hypochlorite, and chlorate of soda. It is chiefly the free hypochlorous acid which causes the rapid bleach. This solution is absolutely harmless to the fibers of the threads, the best proof that they are in no way injured being that goods bleached by electrolysis only lose about 2 per cent, as against some 8 per cent for chloride-of-lime bleach.

When making further comparisons between the new and the old methods, it is well to bear in mind the well-known fact that chloride of lime quickly loses its strength. It is invariably assumed to be of some given standard; but, as the hydrometer test is deceptive and other tests are troublesome, guessing is generally resorted to, and cloth is often spoiled. In this apparatus, the difference between the readings of the two thermometers is a ready and infallible test, though that is scarcely needed after once regulating the flow of the brine and the electrical current. The electrolyzed liquor is always of one strength; mixing or reducing is not necessary, neither does the apparatus need any attention. Rock salt or sea salt may be used in addition to waste salt for mixing brine, providing it contains no mineral injurious to the subsequent processes.



FIG. 1.—ORDINARY APPARATUS.

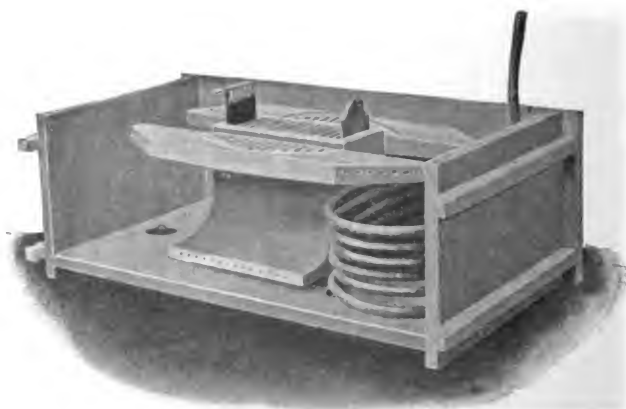


FIG. 2.—APPARATUS FOR PRODUCING STRONGER LIQUOR.

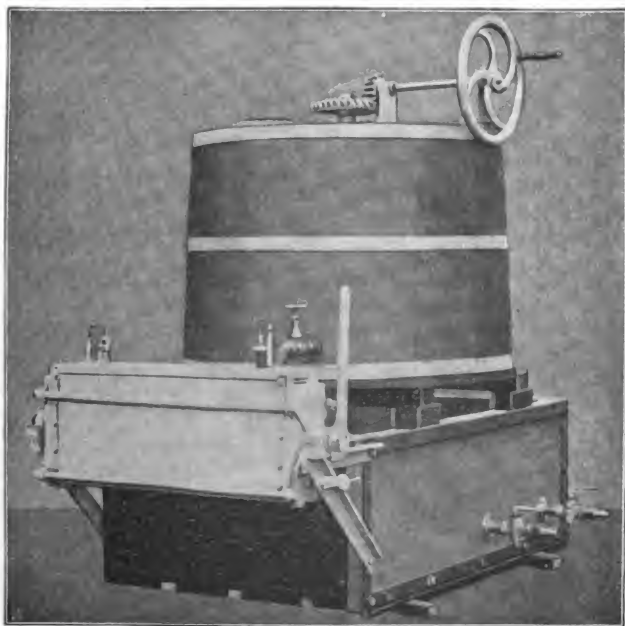


FIG. 3.—APPARATUS FOR STEAM LAUNDRIES.

Fig. 2 represents a later apparatus, which produces a bleaching liquor some six times stronger than Fig. 1. Fig. 3 shows a special apparatus, producing the same bleaching liquor for use in steam laundries. All these apparatuses are intended to be connected with the dynamo already in use for electric lighting.

ERNEST L. HARRIS,

EIBENSTOCK, *February 18, 1901.*

Consular Agent.

EXTINCTION OF FIRE ABOARD SHIP.

Consul Liefeld, of Freiburg, March 13, 1901, sends the following article on extinction of fire on shipboard, taken from the *Fire Call*, a European journal devoted to the fire service:

Some experiments have been made at Bremen in connection with a new mode of extinguishing fires on board ship, invented by a Berlin chemist by the name of Gronwald. The objects aimed at and said to have been attained by the new system are: First, to give timely notice, by means of a special apparatus, of any fire which may break out in the hold of a ship; and, second, to promptly extinguish the same by pumping carbonic acid into the hold.

The official reports of the experiments may be summarized as follows:

Two piles of wood, in all about 4 cubic meters square, were built up in the fore-hold of a lighter. The large logs were mixed with smaller blocks of wood and a quantity of wood shavings soaked in petroleum. On the top of the piles of wood was spread about a fourth of a ton of coal, and in the hold was also placed an iron basket filled with coke heated to a perfect glow. The two piles of wood were set alight simultaneously at seven minutes past four in the afternoon. The fire developed quickly with the hatches open, and at twenty-one minutes past four the hatches were closed. Carbonic-acid gas was then pumped into the hold for twenty-one minutes, and ten minutes later the hatches were opened. The fire was found to be completely extinguished. The fire alarm worked perfectly, and the thermometer on deck showed the rise and fall of the temperature in the hold correctly. Later, another experiment was made under exactly the same conditions, except that steam instead of carbonic-acid gas was pumped into the hold after the fire had become well developed. On this occasion, the piles were lighted at ten minutes past nine in the morning, and the hatches were closed fifteen minutes later. Steam of 8 atmospheres, falling rapidly to 1.5 atmospheres, was then discharged into the hold through a hose pipe attached alternately to a couple of steam fire engines. This went on for thirty minutes, and the hatches were then taken off. The fire in the piles of wood was apparently extinguished, but there was yet so much life left in it that one of the piles blazed up again in seven minutes and the other in nine minutes. The fire in the basket of coke was quite out, but a few glimmering sparks remained among the ashes of the wood which had been used for lighting the coke.

Without pronouncing any opinion one way or the other respecting Herr Gronwald's system, suffice it to say that the only new feature in it appears to consist in his employment of carbonic-acid gas. What he claims is that when a fire breaks out in a ship's hold, if his system is followed the fire will be automatically announced on deck; it will be kept under observation from the deck and extinguished

by operations carried out on the deck. His system consists in fitting pipes in every compartment of the vessel communicating with the deck, acting as safety valves, through which smoke and heated air may ascend to the deck in case of fire and give the alarm; further, thermometers and alarms may be lowered down these tubes, thus making it possible to watch the progress of a fire in the hold from the deck without either removing the hatches or entering the hold, and, lastly (which is the principal feature of the system), down these pipes is pumped the carbonic-acid gas which will extinguish the fire. The gas can be forced among the cargo at any required pressure, and it will permeate everything, even tightly stowed cotton bales.

FINANCIAL CONDITIONS IN JAPAN.

The financial condition of Japan is at present far from encouraging, and her bankers, statesmen, and business men are exerting every effort to avert a pending panic. The situation, as analyzed by the shrewdest financiers and statesmen of the Empire, shows that the Chinese indemnity secured at the close of the Japan-China war, together with large national loans, led to the exploiting of many public and private undertakings which caused money to be unusually plentiful among the coolie, or laboring, classes. This induced extravagant methods of living and is assigned as a potent factor in the large increase of imports. The amount of indemnity paid by China proved insufficient for the enterprises projected, and many millions were diverted from the customary channels of trade to carry forward these undertakings.

The large increase in imports was unfortunately accompanied by a falling off in exports during the past year, occasioned by the interruption of the Chinese trade, and a decreased demand for silk and habutai in America and Europe, so that last year the relation of exports to imports stood in the ratio of five to six, and 50,000,000 yen (\$24,900,000) passed out of the country to settle Japan's balance of trade. This large outflow of specie led the Bank of Japan to raise its rate of interest, produced a glut of merchandise in the godowns of the importers, and caused a pronounced depreciation of stocks, bonds, and securities.

The scarcity of money for commercial and industrial purposes is all the more keenly felt because of the steady rise in price of all living expenses, which have increased during the last few years over 75 per cent.

Foreign capital declines to enter the Japanese market, although tempted by flattering rates of interest. The Government's recent effort to float a foreign loan has not proven a success, while school and municipal bonds, based upon safe security, are rendered undesirable to foreigners because of the faulty regulations and conditions attending their issue.

Both foreign and native banks decline loans on personal credit, and at the close of 1899 the total paid-up capital of the banks of the Empire, exclusive of the Bank of Japan, was \$113,000,000, while at the same time they were carrying loans based on concrete security to the amount of \$125,250,000, distributed as follows: Lands and houses, \$50,500,000; goods, \$51,250,000; public bonds, \$23,500,000. From this, it will be seen that the banks have tied up in concrete investments a larger sum than their total paid-up capital, and Minister Watanabe observes that this fact is largely responsible for the present embarrassment felt in business circles.

The president of the Bank of Japan, at the last annual meeting of the shareholders, said:

Throughout the year under review (1900), the specie reserve of the bank steadily dwindled month after month, the excess of imports over exports and a financial panic in Shanghai, owing to the Boxer trouble, all contributing to bring about this regrettable result. The depletion of specie and the increased demand for money occasioned by the Chinese trouble necessitated the bank's issuing notes beyond the prescribed limits in June and the succeeding months.

The closeness of the money market, combined with the dullness of trade and violent fluctuations of prices, is causing much alarm among merchants, manufacturers, and bankers, and more failures are imminent.

YOKOHAMA, *February 19, 1901.*

E. C. BELLOWES,
Consul-General.

Under date of March 1, Mr. Bellows sends, in continuation of the above, the following extract from a recent issue of the Japan Times:

The market of last year was sluggish, but this year it is at a dead standstill. In Osaka, all kinds of industry testify to their unhappy condition in the thinned columns of smoke rising from the factory chimneys. Every sort of textile goods and foreign ironware has had a poor sale. Dealers in silks and cotton goods declare that they have never experienced such a miserable time during the past twenty years. The fact that the price of rice is low, notwithstanding the fact that the crop of last year was not so good as was estimated at first, made farmers store their rice and consequently diminished their purchasing power, so that depression is also felt in the provinces.

BRICKMAKING IN FORMOSA.

I have had of late two inquiries regarding brickmaking machinery—one from a local brick manufacturer who desires to be placed in communication with American machine makers and one from an American firm which desires to introduce brickmaking machinery into Formosa and writes for general information. To manufac-

turers of clay-working machinery in general, the following may be of interest:

Prior to the arrival of the Japanese there was, with the exception of an occasional native structure, but little building done in the island, and consequently but a trifling demand for bricks. The small Chinese buildings from time to time erected were made of sun-dried mud bricks, and, with the exception of a few crude tile kiln to supply roofing, there were no clay-working establishments in the island. If a demand arose for a few thousand bricks for some foreign-style structure about to be erected, it was met by the import of material from Amoy. For native buildings, mud bricks still remain the favorite material; though the more pretentious of these structures, if two storied, have perhaps two or three brick pillars to give additional support to the roof, and some which front on prominent streets are faced with red brick or tile.

In manufacturing sun-dried bricks, no special attempt, as a rule, is made to obtain the most suitable material. In erecting a native building, if there is vacant ground in the vicinity, a small plot is selected to supply material for the bricks. The turf is removed over a considerable area and to one side a hole of little depth is dug; into the latter a workable quantity of the earth is shoveled; water is added, and sometimes rice chaff and chopped straw, and the earth is well treaded by foot until it has become sticky. When of the right consistency, a quantity sufficient for a single brick is pressed into a wooden mold without top or bottom, the two surfaces are smoothed off, and it is then removed and placed in an exposed spot to dry in the sun. The Chinese use mud because they can find nothing cheaper, and not because it is satisfactory as a building material.

For single-storied structures on well-drained land, the bricks are probably sufficiently strong, though their use would not appeal to one with the least regard for cleanliness; but for two-storied structures in exposed positions, they are dangerous. During the typhoon of 1898, there were 1,398 mud-brick houses totally destroyed and 759 damaged within a radius of 2 miles from this consulate, while, with one exception, not a brick building suffered. Nearly two hundred lives were lost, the majority of the people being killed by falling buildings. As the bricks are merely sun dried, they of course are converted into mud again on exposure to water, with effects that can be easily imagined.

It is now expected that the Japanese will discourage the use of such a dangerous and unsanitary material as mud bricks, and that the demand for kiln-burnt bricks will increase among the natives. At present, the demand for the latter is limited to the Japanese, who

are using large quantities for the new railway and other public works. There are twelve large, permanent factories in the island owned or controlled by Japanese, with a total monthly production of some 2,500,000 bricks. In addition, there are some forty to fifty native factories manufacturing brick and roof and floor tiles. The Samejima Shokai (head office, Daitotei, North Formosa) has factories at Kentan, Daichokuho, Hokuseiko, Sharyo, and Boryo, North Formosa, and Takow and Jokato, South Formosa. The Mitsui Bussan Kaisha (branch office, Daitotei, Formosa) has a factory at Sharyo; the Kogyo Kaisha (office, Taihoku, Formosa), at Boryo and Shakko; and the Jijo Kabushiki Kaisha (office, Misumi, Utogun, Kumamoto, Japan) factories at Shinchiku and Byoritsu. Several of the factories mentioned above manufacture tiles as well as bricks, and the Kogyo firm has a considerable output of drainage piping.

No machinery is used in any of the Formosa brick factories, and the following data may be of assistance to home makers of clay-working machinery in finding out just what advantages they can offer to induce the local brickmaker to replace his methods by theirs.

There is a great abundance of good clay in Formosa for the production of ordinary slush brick. The material is mixed in a pit consisting of a circular roadway sunk in the ground a half foot or so, around which tramps an ox. Water is added to the sand and clay, and the mixture is treaded by the ox till it reaches the right consistency. As a rule, for the ordinary building brick, some three parts sand to seven parts clay are used. The green bricks are formed in suitable wooden molds operated by hand. An ordinary workman can mold some 500 to 800 a day, and some operators, exceptionally expert, run as high as 1,200. These workmen are paid 1 to 1.50 yen (50 to 75 cents) a thousand. The majority of the Japanese factories have well-built, permanent kilns, each with an average capacity of about 100,000 bricks monthly. Formosa coal, at some 4 yen (\$2) a ton, is used as fuel. The finished brick is in demand at from 7 to 11 yen (\$3.50 to \$5.50) a thousand. Occasionally, there is an order for some special shape or quality, and these bricks will bring as high as 20 yen (\$10) a thousand. The chief demand, however, is for a good quality building brick at about 10 yen (\$5) a thousand. The labor employed is chiefly Chinese; Japanese are utilized only as overseers, etc. Chinese day labor receives from 30 to 40 sen (15 to 20 cents) and Japanese 30 yen (\$15) a month and upward.

If American manufacturers can save money for the local brick-makers by introducing clay-working machinery into Formosa, there is every prospect of business being done, as the Japanese firms named are large houses with considerable capital. If our manufacturers

have any attractive propositions to make, it would be well for them to communicate with these parties; and I would suggest that complete catalogues of brickmaking machinery be sent to this office, where they will be placed on file and shown to parties interested. The Chinese factories are small, temporary affairs, constructed in the vicinity of places at which there may be for the time a demand, and removed as soon as the demand has been supplied. The small cattle-driven plants, however, might interest this class of manufacturers; and it might be advisable to supply this consulate with information regarding these as well.

JAMES W. DAVIDSON,

TAMSUI, *March 2, 1901.*

Consul.

A NEW SETTLEMENT OF THE CHINESE CUSTOMS DUTIES.

Regarding the proposed rearrangement of the Chinese customs duties, which will play a prominent part in the present peace negotiations between the powers and China, the central bureau of the German Empire for preparing data for treaties of commerce reports as follows:

The so-called sea duties—*i. e.*, those which are levied on the goods entering Chinese ports—are determined by treaties, and are in part specific and in part ad valorem duties. All goods not particularly named are subject to an ad valorem duty of 5 per cent, the same being based on the market value thereof. As regards determining such market value, the treaty says that if the merchant can not agree with the Chinese official on the question at issue, each party shall call in two or three manufacturers to examine the goods. The highest price at which one of such manufacturers would be willing to buy the goods shall be accepted as the value thereof. In addition to the import tariff, there is an export tariff. The articles not enumerated in the import tariff which are specified in the export tariff must, when imported, pay the same duties as those imposed upon them in the export tariff. The so-called sea duties are, however, as is well known, not the sole tax imposed, a supplementary charge being levied in the form of the intermediate duties known as "likin." Anent the rate of such intermediate duties, the treaties only state that they are to be levied according to the principles ruling at the time when treaties are made, and that they can not subsequently be raised. This condition has proved to be perfectly impracticable. The intermediate dues have degenerated into a purely arbitrary charge, in which the local Chinese officials seek and find their principal source of income. There is but one single means of remedying this ever-increasing, insupportable evil, namely, to do away with these intermediate duties under the present negotiations as part of the terms of peace. True, it will be necessary to assent to an increase of the sea duties, in order to secure to the Central Chinese Government the income necessary to deal with the question of compensation consequent upon such administrative charge.

GEO. SAWTER,

GLAUCHAU, *March 4, 1901.*

Consul.

OPENING FOR A SASH AND DOOR FACTORY AT SHANGHAI.

There is an excellent opening for the establishment of a sash, door, and wood-working establishment at Shanghai.

A number of very large modern buildings are always in course of construction in this city, and I have been advised by architects that they are constantly in difficulties about interior finishings.

There is not a planer, molding machine, or sawmill in China, so far as I have been able to learn. Logs are sawed into lumber by the whipsaw process, and in every city and throughout the country men are engaged in this business of sawing lumber by hand.

Moldings are made by hand work, and all lumber is dressed in the same way. There is not a lumber dry kiln in China, and the most difficult problem in the construction of buildings is to get well-seasoned material for interior finish.

A proper wood-working establishment at Shanghai would command the trade of the entire Yangtze Valley and probably of points along the coast to the north, such as Tsintau, Wei Hai Wei, Tientsin, and Port Arthur.

The most important feature of the plant would be a first-class dry kiln of sufficient capacity to meet the demands for dry lumber. A good band saw for sawing native logs of small size and imported lumber up to 18 inches would be required. Molding machines, planers, and sash and door machinery for making special work, turning lathes, and general wood-working machines would complete the requirements.

A plant for making stock doors and windows would not be advisable, as proper material is not to be had and the demand is not heavy.

Most of the wood used for interior finish is hard wood, coming from countries south of here.

All building contracts are carried on by Chinese, and the lumber yards are also in their hands.

The best man to undertake this business would be one of good education and address, familiar with the details of the business and capable of taking the management of the concern; he should have some capital and first-class recommendations; he should spend at least three months here looking into the requirements before ordering his plant; he should get the Chinese contractors and perhaps the lumber dealers to join him in the enterprise.

The Chinese have plenty of capital to engage in such enterprises

and do not hesitate to invest therein, if they are presented by good and capable men and show chances for reasonable profit.

The architects will be glad to do all they can to encourage the institution, for all recognize the necessity of it.

For further information, correspond with Atkinson & Dallas, architects, Shanghai, China.

HENRY B. MILLER,

Consul at Chungking (temporarily at Shanghai).

SHANGHAI, *February 26, 1901.*

HOTEL AND APARTMENT-HOUSE INVESTMENTS IN CALCUTTA.

The congested condition of the European quarter of Calcutta is such that rents are extravagantly high, and various propositions are being discussed for its relief, among others the building of suburban residences, several miles out, to be reached by electric tramways; but this would not prove satisfactory, as the people here prefer to live in the city.

If a building company with sufficient capital would come here and erect first-class apartment houses, such as we have in New York and other large cities, of six or eight stories (not more, as the ceilings must be high on account of the hot climate), with elevators and all modern improvements, they would be taken by government officials and merchants at a large rental.

The people here are too conservative to start such an enterprise, but those requiring apartments would soon see the advantages over ordinary dwellings in cheaper rates and in requiring fewer servants; besides, as many residents go to the hills during the hot months, the rooms could be left in charge of janitors more easily than houses.

Where ground is as costly as it is in the European quarter of Calcutta, on account of its limited area, apartment houses properly constructed would bring the desired relief and be paying investments.

A dwelling house, such as is regarded first class, of two or three stories, with a good-sized compound (ground), rents for from \$2,000 to \$3,500 per annum.

This consulate-general, that occupies a flat on the second floor 70 by 90 feet, with eighty steps to reach it and no elevators or other modern improvements, rents for \$1,350 per annum. I mention these instances to show what rents are here, and they will be higher unless some way is provided to relieve the situation, as the city is growing rapidly.

Calcutta is a city of about 800,000 population, the capital of

British India, the residence of the viceroy, as well as of the officers of the secretariat and the officials connected with the government, with their thousands of employees, but without one first-class hotel. During the cold season, the native princes and other wealthy citizens of India visit Calcutta, besides tourists from every part of the world; hotels are so crowded that it is almost impossible to secure rooms at any price, and tents are put on the roofs for the accommodation of guests. I know of no place where first-class hotels are more needed or would bring better returns on the investments than in Calcutta.

R. F. PATTERSON,

CALCUTTA, *February 28, 1901.*

Consul-General.

PAPER CURRENCY OF SIAM.

On September 21 next (the anniversary of the King's birthday), the Government of Siam will begin the issue of paper currency. The notes will be of the following denominations: Ticals,* 5, 10, 20, 100, and 1,000, and, by a royal decree, will be declared legal tender throughout Siam, except at the office of issue.

The new currency will be of great assistance to trade in this country, as there is great confusion and loss under the prevailing system. At the present time, the rupee is used in the north of Siam, and in the south the silver tical and the Mexican dollar. On account of the very slow means of communication, the trader is often at the mercy of the Chinese money changers, whose charges are sometimes exorbitant. Again, the advantage that paper currency will have over the heavy, bulky silver coins will be very great.

It is the intention of the Government at first to hold the notes against silver for purchase by anyone who wishes to use them. It is anticipated that the banks will be heavy purchasers. The present bank notes are not legal tender and often will not be accepted among the ignorant, even in the city of Bangkok. The Hongkong and Shanghai Banking Corporation, the largest in the country, has already reached its limit of paper issue (\$10,000,000). After this, it must deposit with the Hongkong government dollar for dollar on all further issues of notes. By the purchase of the Government notes for use, it will save all expense and trouble of issue and handling. Again, owing to circumstances recently pointed out in my report "Exchange in Siam,"† the vaults of the local banks are filled to overflowing with silver coin and a safe outlet is sought.

* The value of the tical is nearly two-thirds that of the Mexican dollar, or, taking the valuation given the latter by the United States Treasury on April 1, 1901, 29.4 cents.

† See ADVANCE SHEETS No. 881 (November 8, 1900); CONSULAR REPORTS No. 244 (January, 1901).

For a time, the Government proposes to hold in reserve the entire value of all sales made, but as Siam's credit becomes established in other countries, a safe reserve will be held and the surplus invested in foreign securities.

The present treasury balance is about 12,000,000 ticals at home and £350,000 in Europe. Siam has no public debt.

BANGKOK, *February 14, 1901.*

HAMILTON KING,
Consul-General.

NOTES.

Export Tax on Colombian Products.—Consul Ingersoll, of Cartagena, informs the Department, February 23, 1901, that the Colombian Government has issued a decree fixing export duties* upon certain products of that country. The decree, which takes effect March 1, 1901, applies to the following articles:

Article.	Tax.	Article.	Tax.
Coffee.		Balsam, tolu.....per 100 lbs...	\$5.00
Cleaned.....per 100 lbs...	\$1.00	Copaiba.....do.....	3.50
Uncleaned.....do.....	2.50	Fustic.....do.....	.50
Rubber, crude.....do.....	5.00	Brazil wood.....do.....	.50
Hides:		Mahogany, cedar, etc.....per 1,000 sq. ft...	5.00
Cattle.....do.....	3.00	Cocoanuts.....per M...	5.00
Other.....do.....	4.00	Bananas.....per bunch...	.20
Ivory nuts.....do.....	1.00	Bird skins, dried.....per kilo...	10.00
Divi-divi.....do.....	.50	Heron plumes.....do.....	50.00
Tobacco:		Orchids.....do.....	10.00
Leaf.....do.....	2.00	Ores and minerals.....per metric ton...	20.00
Roll.....do.....	3.00	Gold, platinum, and silver, assayed, 2	
Manufactured.....do.....	5.00	per cent certified value payable in	
Cotton:		paper at current rate exchange.	
Raw.....do.....	2.00	Unassayed:	
Ginned.....do.....	3.00	Gold.....	20 p. cl.
Cotton seed.....do.....	1.00	Platinum.....	15 p. cl.
Tortoise shell.....do.....	5.00	Silver.....	20 p. cl.

German Consular Representation in Central America.—Minister Merry reports from San José, March 6, 1901, the establishment at Managua of a German consulate-general, with jurisdiction over consulates in Salvador, Honduras, Nicaragua, and Costa Rica.† The establishment of this office, says Mr. Merry, appears worthy of notice as an indication of the recognized German policy in the development of foreign commerce, and is also probably due to the impression that the construction of the Nicaragua Canal in the near future will increase the importance of proper German representation in its vicinity. The extensive commercial interests of Germany in Central America, adds the minister, have suffered heavy losses during the past few years, resulting largely from the unfavorable condition of the coffee market in Europe and the United States; but

* Payable in national paper currency. The value of the paper currency, according to a report of November, 1900 (see Commercial Relations, 1900, Vol. I, about to be issued), was \$1 paper=10 cents gold.

† See ADVANCE SHEETS No. 974 (March 1, 1901).

German merchants have made such heavy advances to producers that it has become necessary to work out the commercial problem patiently and with increased investment, if necessary. The action of the German Government set forth above is a proof of its increasing interest in Central American affairs.

American Manufactures in Australia.—Under date of February 15, 1901, Consul-General Bray, in reporting the arrival of the steamer *Star of Australia* of the Tyser Line, at Melbourne, says:

This steamer is said to have brought to Australia one of the largest shipments of American manufactured goods that has ever left an American port. Her cargo list covers 120 packages, in which is included every variety of manufactured goods produced in the United States. There are 400 tons of sewing machines alone. For Auckland, New Zealand, the vessel brought an entire gas plant weighing 500 tons. There are rifles, shotguns, revolvers, and ammunition sufficient to supply a brigade, while lawn mowers, reapers, wagons, wheels, coffee mills, patent medicines, etc., are reckoned by tons. Kerosene to the extent of 80,000 cases and 1,500 barrels, 1,000 tons of wire, 1,200 tons of bar iron, 400 tons of roll paper, hundreds of pianos and organs, together with an extensive array of miscellaneous articles, comprise a cargo which, for size and value, has probably not been exceeded in any vessel coming to Australia.

Turkish Demand for Silk-Weaving Machinery.—Consul Thomas H. Norton, of Harput,* March 4, 1901, says the establishment of a new silk factory at Mezreh is contemplated and that the persons interested desire to secure the necessary equipment from the United States. Price lists are requested from reputable firms furnishing machines and accessories for silk weaving. The prices quoted should be net, including packing, f. o. b. New York, and must cover installations using water power, the only force economically available there. Price lists of treadmills and allied means for utilizing the power of draft animals are likewise desired. They may be sent to Mr. Norton at Harput. The machinery should be such as is best adapted for a region where skilled mechanics are practically unknown and where the question of repairs becomes a serious matter. The consul adds that the silkworm is largely cultivated in that section of Turkey and that there are two silk factories in operation—one at Mezreh and the other at Harput.

* Consul Norton's post-office address is Mezreh, Mamouret-ul-Aziz, Turkey.

Steamship Line between Odessa and the Persian Gulf.—

Consul-General Bowen, of Teheran, under date of February 25, 1901, reports the establishment of a Russian line of steamers between Odessa and the Persian Gulf.* The trade with southern Persia, says the consul-general, has hitherto been so conspicuously in the hands of the English that their influence was considered to be practically unrivaled. It seems, however, that Russia has decided to enter into competition with Great Britain in this sphere, although at first she will labor under a serious disadvantage, as Russian goods are generally inferior to those of Great Britain. In order to overcome this drawback, Russia, it is said, will subsidize the new line and grant bounty concessions to all goods carried. It is intended, adds Mr. Bowen, that the new line of steamers shall supply the Persian market with sugar, cotton goods, and petroleum; but, as Persia has neither produce nor goods that are needed in Russia, the return cargoes will be practically nil, and it is doubtful whether the line will ever be self-supporting.

New Railways in Southern Russia.—Consul Hughes, of Coburg, reports that three new railway lines have been planned or are already under construction on the eastern and northeastern shores of the Black Sea. The first line is to join Novorossisk to the Caucasus Railway and will start from the Vladikavkas line, cross the mountain chain by the Maikope route, and proceed along the coast down the Sukhum Kale. This line is to be only 28 miles in length, but its continuation to Novo-Senake, on the Trans-Caucasian Railway, will shorten the route from Rostof, the port on the Lower Don, not far from the Sea of Azof, to Tiflis, the capital of Transcaucasia, by 450 miles. The new standard-gauge railway, moreover, would open up a number of Government coal mines. The second line is to start from Tiflis and pass through the wine-growing districts of Kakhetie. The third project concerns the mines of Sadonsk and the metallurgical districts of Alaguir, in the northern Caucasus, which are reported to be very rich in argentiferous lead and zinc ores. The railway is to start from the Vladikavkas and will traverse the country of the Terek Cossacks.

Export of Russian Butter.—Under date of March 4, 1901, Consul Mahin, of Reichenberg, reports as follows relative to the export of Russian butter:

Russia has in recent years been creating a large export trade in butter. In 1897, the export amounted to 19,081,030 pounds; in the

* See ADVANCE SHEETS No. 990 (March 24, 1901).

first ten months of 1900 the export was double that quantity, being 37,729,220 pounds. The principal increase of export is in the butter product of Siberia. Butter trains, equipped with refrigerating apparatus, convey the goods to the ports of export. During the season of 1900, on petition of the association of butter producers and dealers, two special trains of twenty-five cars each were dispatched weekly loaded with butter for the Baltic ports, where, in four months, 400,000 poods (14,428,000 pounds) were delivered. The chief superiority of Russian butter consists in its low price and relatively great "keeping" quality. For these reasons, it is said, many consumers prefer Siberian to other foreign butter. It is also said to be free from adulteration of any sort.

Russian Export Tariff on Wood.—Under date of April 10, Deputy Consul-General Hanauer sends the following from Frankfurt:

Russian papers report that the Finance Minister contemplates levying a duty on sawn wood exported from that country. German papers, in commenting upon this news, say the effect of this measure will be to lessen the profit of German manufacturers using Russian lumber and to promote the establishment of sawmills in Russia. It is feared that not only will German sawmills suffer from this measure, but that other manufacturing branches working in wood will be forced to locate within the Russian border. Germany's imports of sawn and cut wood from Russia amounted to 40,700,000 marks (about \$9,750,000) in the year 1899. This lumber and timber is worked up in German establishments and to a large extent exported as manufactured articles. This new impost is believed to handicap a profitable line of German export trade.

International Agricultural Exhibition at Prague.—Under date of March 15, 1901, Consul Hughes, of Coburg, reports as follows:

The Landwirthschaftliche Centralgesellschaft for the Kingdom of Bohemia is making arrangements for an agricultural exhibition, to take place at Prague from the 15th to 19th of May, 1901. Cattle, agricultural products, and agricultural tools and machines will be exhibited. The custom-houses at the frontiers are ordered to have foreign exhibition goods passed through the head customs office at Prague, so that goods may be noted for the refunding of duty on

reexportation. I would advise our American manufacturers of agricultural tools and machinery to make immediate arrangements for exhibiting their goods, which are vastly superior to those turned out by their continental competitors.

Proposed Machinery Exposition at Frankfort.—Consul-General Guenther writes from Frankfort, March 7, 1901:

On the 5th instant, a meeting, largely attended by the members of the technical and other societies, took place at Frankfort to receive the report of a committee charged with the duty of investigating the subject of a permanent exposition of machinery and models in this city. Plans for a suitable building and estimates of cost for the same were submitted; \$50,000 was the estimated cost, but many thought the amount inadequate. After a long and animated discussion, the following motion was adopted unanimously:

In view of the importance of Frankfort-on-the-Main as the center of a district rich in industries and commerce and of an immense passenger traffic, this meeting, called by the representatives of the Technical Society, the Frankfort branch of German engineers, the Electro-Technical Society, the Frankfort Society of Technical Engineers, the Society for Social Economy, the Agricultural Society, etc., deems a permanent exhibition of the trades and industries an urgent necessity and an efficient means to further the commerce, the industries, and the agricultural interests of Frankfort-on-the-Main. We therefore request the proper authorities and the general public to aid in its establishment.

Exhibit of Spanish Goods in Habana and New York.—Consul-General Lay transmits from Barcelona, April 1, 1901, translation of a cutting from the *Diario de Comercio* of that city, relative to a proposed exhibit of Spanish products in Habana and New York, as follows:

This exposition will consist purely of peninsular products, natural and industrial, and will have in view the furtherance of the development of Spanish trade.

It is admitted that, although all our industrial products are not able to compete with those of other countries, some can easily do so.

New York and Habana are indicated because they are well adapted to form the base of commercial transactions with Central America, Mexico, and the United States.

In Habana, this trade exposition would meet a real necessity in counteracting as far as possible the spread of American manufactures in the Cuban market, keeping up the commercial relations with Spain corresponding to her powers of production.

In New York, the main object of the exposition would be to supply the market with the enormous quantities of minerals that lie in the subsoil of Spain, thus aiding the mining industries that are being developed in the Peninsula.

Exposition at Namur, Belgium.—Consul Roosevelt reports from Brussels, April 6, 1901:

A district agricultural fair and international exposition has been organized under the patronage of the King, to be held at Namur from July 1 to 21, 1901. Congresses and conferences on agriculture, dairy products, poultry, etc., will be held during the fair. Requests for entrance into any competition must be addressed to Mr. Hubert Bruneel, commissioner-general, Namur, before May 1, 1901. The fair will include the following: Horses, cattle, sheep, swine, dogs, etc.; dairy work; machines, implements, distilleries; agricultural products, fertilizers, seeds, feed; woods and forests, Government Agricultural Institute at Gembloux, agricultural instruction, agricultural science, rural economy, free associations, apiculture, aviculture, horticulture.

Fancy and Leather Goods Exhibition in London.—Under date of March 20, 1901, Vice and Acting Consul-General Westacott transmits the prospectus of an international fancy and leather goods exhibition, to be held at the Prince's Skating Club, Knightsbridge, London, from May 4 to June 1, 1901, under the direction of the British and Colonial Exhibitions, Limited, and supported by a large number of leading people. The vice-consul-general requests that an early notice may be given in the CONSULAR REPORTS calling the attention of American makers of fancy and leather goods to the opportunity of exhibiting in this exposition; but the latest date (March 31) on which "applications for space should be sent in" had elapsed before the vice-consul-general's report was received at the Department.

Wireless-Telegraphy Signals for Vessels.—Consul-General Guenther, of Frankfort, on February 23, 1901, writes:

An automatic system of signals for the purpose of warning vessels in stormy weather against the proximity of reefs and rocks has been exhibited to German marine experts. The automatic part of the apparatus is said to consist of a wheel with a number of cogs arranged at suitable intervals, which slide over a Morse apparatus. The latter is connected with a ladder placed vertically on rising ground on shore or on a light-house. The electric waves emanating are taken up by receiving apparatus on vessels having such within a radius of 7 miles. A bell sounds and the receiver notes the spot against which vessels should be warned.

Large Masonry Bridge Spans.—Consul-General Guenther, of Frankfort, under date of February 27, 1901, reports that a masonry bridge is being constructed across the valley of Petruffe, in Luxembourg, which will have the largest single span of any masonry bridge, viz, 277 feet of a span width and a rising acclivity of 102 feet. Previous to this, the largest masonry bridge span was that of Cabin John Bridge, near Washington, viz, 220 feet, with a rising acclivity of 57½ feet and a height above the water of 101 feet. Following Cabin John Bridge comes the railroad bridge at Jaremcke, over the Pruth, followed by the Grosvenor Bridge, over the Dec, at Chester. These three spans have been among the world's greatest architectural triumphs in bridge masonry.

Contamination of Prussian Rivers.—Consul-General Guenther, of Frankfort, reports, March 7, 1901, that a royal Prussian commission will probably commence its labors April 1, 1901, with a view of studying the question of keeping the rivers pure and preventing the waters from becoming injurious to the health of persons or animals. Owing to the rapid increase of industrial establishments, this question has become of great importance. Aside from the contamination of the water of rivers, lakes, etc., from throwing in solids, the influx of impure waters from sewers and factories will receive attention. With reference to contamination from mining operations, the respective mining authorities have been instructed to put a stop to practices injurious to the public and to cooperate in important cases with the police authorities. Effective regulations all along the line will be established.

The Malaga Almond Crop.—Consul Ridgely reports from Malaga, March 15, 1901:

Inquiries have been made from the United States as to the prospect of the coming almond crop in this district. It is considered too early here to speak with any confidence of the crop. Indeed, I am assured by experts that nothing positive can be said before the 1st of May. In so far, however, as one can vaguely judge at this time, the crop is fully as promising as at the same period of last year; but the winds of March and April are to come yet, and until they have passed nobody knows what the almond crop will be. Incidentally, I may state that it is likely the frost has done some damage in the neighborhood of Granada, but probably not to any great extent. Of last year's crop of almonds, many boxes still remain in Malaga

unsold on account of the high prices demanded. This fact, perhaps, has influenced certain persons to assume that the almond crop this year will be small, but there is no valid reason for any such conclusion.

American Vines for Germany.—Under date of February 20, 1901, Consul-General Guenther, of Frankfort, reports that a committee on grapevine culture of the Agricultural Society of Rhenish Hessen has reported that thorough, practical experiments should be made with the planting of American grapevines in that section, as, according to experience, the hybrids produced by crossing American and European vines will play an important rôle in grape culture as soon as the quality of the product becomes sufficiently valuable. In the Hessian Agricultural Journal, however, the well-known phylloxera expert, Mr. Dosch, has just published a lengthy article in which he declares himself as most decidedly opposed to the views of the above-mentioned committee.

Education of German Children in Foreign Countries.—Consul Hill, of Amsterdam, March 19, 1901, reports that, in a recent German appropriation bill, provision has been made for subventions for 125 schools for the German education of German children in foreign countries. For a school at Constantinople, \$7,140 is allowed; for three schools at Buenos Ayres, \$4,284; for one at Galatz, \$2,665; and \$2,380 for a high burghal school and \$238 for a deacon school at Antwerp. A high school for girls at Brussels also receives \$2,380. Four schools at Bucharest together receive \$2,380. A school at Pretoria is granted \$1,428 and one at Johannesburg \$2,522.80. There are 29 German schools in Brazil, 12 in China, 12 in the British colonies, 12 in Roumania, 11 in Egypt, etc.

Commercial Experts in German Consulates.—Vice-Consul-General Murphy sends the following from Frankfort, March 20, 1901:

The experiment of assigning commercial experts for duty in German consulates is said to have proven so satisfactory that the appropriation for this purpose in 1901 has been increased from 55,000 marks (\$13,000) to 150,000 marks (\$35,000). Such experts are already employed at Buenos Ayres, Constantinople, New York, and St. Petersburg, and the assignment of one for the consulate at Rio de Janiero is now being urged.

Lead Pencils in Germany.—Under date of March 15, 1901, Consul Hughes, of Coburg, writes:

The lead-pencil industry in Germany is at present suffering from American competition. It is alleged that our success in this branch of industry is mostly due to the perfection of the machinery. Another important point is the fact that we have the best cedar wood, which is particularly suitable for the manufacture of lead pencils; while the Germans are compelled to import it and can not get it in such good quality. Numerous trials have been made to find another material which could take the place of wood in the manufacture of lead pencils; metal tubes, coverings made from rolled, compressed paper, etc., have been used, but none has met with success.

European Linen-Yarn Trust.—Consul Mahin reports from Reichenberg, February 25, 1901:

For some time, it has been understood that the Austrian, German, and Belgian spinners of linen thread had decided to unite in a reduction of product. The report comes from Paris that the French spinners will join their confrères in reducing the output of their mills. To all intents and purposes, this agreement amounts to a gigantic trust embracing every linen-spinning concern on the continent of Europe. The object is, presumably, to steady and to possibly enhance the price of linen yarn. Makers of linen cloth have for the past six months suffered from the high price of yarn, and this combination will make conditions still worse. Manufacturers can find relief only through increasing the price of linen cloth, which they have so far hesitated to do, the condition of trade not warranting it.

Fireproof Stairs.—Under date of March 4, 1901, Consul-General Guenther, of Frankfort, reports that on the 2d instant official tests of so-called fireproof stairs for apartment houses were made at the yards of one of the fire-department stations in Frankfort, where intense fires had been started for the purpose. The stairs covered with plastering showed the longest resistance and could still be used after being subjected to the fire for twenty-five minutes. Of stairs coated with fireproof paints, no tangible results could be stated, as the stairs experimented with were of great variety as to material and strength; but they were still serviceable after five or ten minutes under fire. Of the wooden stairs without fireproof paints, those of oak withstood the fire the longest.

American Quails for Sweden.—Under date of March 14, 1901, Consul Nelson, of Bergen, reports that the import of American quails into Sweden by Count Claës Lewenhaupt, of Fosstorjo, has awakened lively interest. More than 5,000 quails, representing a sum of about \$3,500, have been ordered for the spring, and still more orders are expected. The birds will be sent in cages—fifty in each cage—constructed especially for this purpose, and the best hopes are entertained as to successful transportation. The small lot of American quails which were set free in Count Lewenhaupt's estate at Claëstorp last spring have endured the winter very well, and it appears that Sweden has good prospects of an increase in its game birds.

Trolley Automobile Line in Germany.—Consul-General Guenther, of Frankfort, March 22, 1901, says that a Berlin engineer has constructed a trolley automobile line similar to that exhibited at the Paris exposition, at Eberswalde, a small city near the German capital. In this system, continues the consul-general, the automobile receives its motive power from an overhead wire by means of a trolley, which is connected with the automobile by a movable cable. This allows the vehicle to turn out at any place on the road. The consul-general adds that the line has been favorably inspected by experts, and that the system is expected to meet with general favor in Germany.

Elberfeld-Barmen Suspension Railway.*—Under date of March 4, 1901, Consul-General Guenther, of Frankfort, reports that, on the 1st instant, the suspension railway across the valley of the River Wipper, from Elberfeld to Barmen, was opened for passenger traffic, and the result is said to be highly satisfactory. Although the crowds were immense and all the cars filled to their utmost capacity, the trains ran smoothly, and no accidents occurred. The cars did not swing at all, even where the curves were sharpest, and they ran into the stations in a quiet way. Ingress and egress is effected in a moment. The surface railway makes the trip in twenty-five minutes, while the suspension railway accomplishes it in half the time, and it is contemplated to still further increase the speed. The fare is 10 pfennigs (2.38 cents).

Canned Meats in Bond in Germany.—Mr. Jackson, secretary of embassy at Berlin, in reports dated March 18 and April 1, 1901, notes that complaints have been made that the German authorities

* See ADVANCE SHEETS No. 704 (April 14, 1900), CONSULAR REPORTS No. 237 (June, 1900).

at Hamburg would not permit the shipment in bond through Germany of sausage intended for the Austrian market. The matter having been brought to the attention of the proper officials, it was stated that this action was due to a misunderstanding. The Hamburg customs authorities have now been instructed that no objection exists to the shipment of canned meats (*Büchsendeisch*) and sausage through Germany in bond, and that this rule applies to meat and sausage of American origin, even when unaccompanied by an American certificate as to sanitary conditions.

Progress of Manchurian Railway.—Under date of Moscow, March 11, 1901, Consul Smith reports as follows:

I am informed from reliable sources that the rails have been laid on the division Hailar-Zizikar, of the Manchurian Railway, and the remaining two-thirds of the whole line between Tchita and Vladivostock is nearly completed. On the divisions Tchita-Kaidalovo-Hailar and Vladivostock-Nikolsk-Harbeen-Zizikar, working trains are running already, and the whole line, it is supposed, will be opened for passenger traffic by May of the current year.

Locomotives and Rolling Stock for Russian Railroads.—

Under date of March 25, 1901, Consul-General Guenther, of Frankfurt, quotes from a recent issue of the *Journal de St. Petersburg* to the effect that the Russian Minister of Roads and Transportation has allowed the Government railroads the following sums for 1901:

	Rubles.
For locomotives.....	20,000,000 = \$10,300,000
For freight cars.....	18,000,000 = 9,270,000
For passenger cars.....	7,000,000 = 3,605,000
Total	45,000,000 = 23,175,000

Electric Railways in Gothenburg.—Consul Bergh transmits from Gothenburg, March 16, 1901, blue prints and specifications calling for bids from manufacturers desiring to furnish rails, switch and cross frogs, and electric cables for the electric street railroads to be built in Gothenburg. The bids must be delivered to the street railroad office in that city not later than on April 10, 1901, and the time is too short to have the specifications translated. They are on file in the Bureau of Foreign Commerce, where they may be consulted by interested parties.

Electric Railways in Montreal.—Consul-General Bittering, of Montreal, under date of April 11, 1901, says that there are 102½ miles of electric road in that city; as motor power, there are available six engines of 600 horsepower each, one engine of 3,000 horsepower, twelve 200-kilowatt generators, six 300-kilowatt generators, and one 1,500-kilowatt generator. The rolling stock consists of 372 closed and 370 open cars. The company's capital at present is \$5,500,000 paid up. In 1900, the company carried 43,362,262 passengers. Last year's business showed a net profit of \$647,246.64, as compared with \$630,870.61 for the year 1899. The above does not include the suburban roads.

New Electric and Water Works in Quebec.—Commercial Agent Boardman writes from Rimouski, April 6, 1901:

A company has been formed to put waterworks and an electric-light plant in Rimouski. The town has voted to guarantee the interest on \$50,000 of the bonds for twenty-five years. The company has purchased good water power and taken over the old aqueduct. Parties wishing to furnish supplies should write to Dr. G. T. Demers, secretary.

Mr. A. Portugais, an enterprising plumber of this town, wishes catalogues and price lists of plumbers' and electric supplies. He does the work for the whole county and thinks he can purchase a part of his goods, if not all, cheaper in the United States.

Electric Plants in Dutch East India.—Under date of March 29, 1901, Consul Hill, of Amsterdam, informs the Department that Messrs. H. R. der Mosch and H. Jul Joostenz, of Batavia, Java, have been granted a thirty-year concession for the erection of electric light and power plants in the cities of Padang and Djokjakarta. Padang, says the consul, is the largest city of the west coast of Sumatra and has a population of about 35,000. Djokjakarta contains 85,000 people and may be reached by rail from Samarang.

Tariff on Machinery in Dutch India.—Consul Hill sends from Amsterdam, March 12, 1901, a fuller statement of the tariff of the Netherlands East Indies than was contained in his report on "American machinery for Dutch India."* The tariff rates are as follows:

Factory and steam engines, machinery; machines and tools for

* See ADVANCE SHEETS No. 966 (February 19, 1901); CONSULAR REPORTS No. 247 (April, 1901).

agricultural, factory, and steam purposes, mining and trades, and also parts thereof, if considered so by the custom-house officers, free.

Iron, ironware, cast, wrought, milled, or forged, not separately specified, 10 per cent ad valorem.

Imports of Dangerous Goods into West Australia.—Consul-General Guenther, of Frankfort, under date of March 25, 1901, says that the Berlin News for Commerce and Industry recently called the attention of German exporters to customs regulations of 1892 (re-published in the West Australian Government Gazette of January 1, 1901), which provide that whoever imports into West Australia goods of a dangerous nature—such as explosives, matches, petroleum, solar oil, naphtha, benzine, acids, etc.—without declaring them specifically, is liable to a fine of £100 and the confiscation of the goods.

American Cottons in Madagascar.—Under date of February 18, 1901, Consul Gibbs, of Tamatave, writes:

Mr. L. Delacre, of Tamatave, invites correspondence with manufacturers or agents in reference to American cotton cloths, especially the marks so well known in Madagascar—"Cabot" and "Massachusetts." This request is significant, inasmuch as Mr. Delacre has long been one of the largest importers of French cottons here. Now that American cottons may be imported and sold cheaper in Madagascar than French cottons, despite the heavy duties, I am of the opinion that the time is not far distant when American cottons will capture this market again. To avoid delay, Mr. Delacre requests that all details as well as samples of cottons be sent him.

Import Duties in Colombia.—Minister Hart transmits from Bogotá, under date of March 12, 1901, translation of a decree of the Colombian Executive exempting from import duties certain food products. The decree says:

The following articles are declared exempt from import duties in the custom-houses of the Republic during the continuance of the present disturbed condition of the public order and during sixty days more: Sweet potatoes, potatoes, onions, garlic, rice, corn, pease, lentils, beans, sugar, wheat flour, lard, butter, and all kinds of vegetables; grains and garden stuffs imported in their natural state and without any preparation whatever. The decree takes effect from the date of its publication (March 5).

Trade Openings in Brazil.—Consul Girimondi, of Santos, March 13, 1901, says that cash registers and adding machines are practically unknown in that section of Brazil and should meet with a ready sale, if properly introduced by agents speaking the language of the country. The consul also believes there is a good opening for photographic apparatus and supplies, and suggests the introduction of up-to-date postal scales to replace the crude articles in use at the present time. Even Government offices, he thinks, might be persuaded to adopt a novelty in this line. Railway companies should also be approached.

Hints to Exporters to the Argentine Republic.—Consul-General Guenther, of Frankfort, March 16, 1901, states that the commercial attaché to the German consulate-general at Buenos Ayers reports that barbed wire for fences of the "estancias" and iron sheeting for roofs and walls of houses are largely imported into the Argentine Republic; the latter, suitably packed in wooden frames, often comprising the main portion of a vessel's cargo. Other articles mentioned by the attaché as finding good sales in the Argentine are remedies against the prevalent sheep itch (sarna), stoves, and preserved food.

Rosario Port Works.—Consul Ayers, of Rosario, under date of February 28, 1901, informs the Department that the Argentine Government has postponed the time fixed in the resolution of September 10 last, for the presentation of tenders for the construction of the port works at that city.* By a decree of the 26th instant, says the consul, tenders may be presented until December 10, 1901, at the Argentine legation in London and until January 10, 1902, at the office of the Minister of Public Works, Buenos Ayres.

United States Rails in Nicaragua.—Under date of March 2, 1901, Consul Donaldson, of Managua, says that the Nicaraguan Government has placed an order with its agent in New York for 2,400 tons of steel rails for the new central branch of the National Railroad, which is being constructed by a German engineer, Mr. Julio Wiest. Considering the fact that Nicaragua has always purchased rails in Germany and England, says Mr. Donaldson, and

* See ADVANCE SHEETS No. 990 (March 21, 1901).

that the contractor for the present railroad is a German, the placing of this order in the United States is an item of considerable importance in the growth of our trade with Central American countries.

Dynamite Fishing in New Brunswick.—A note from the British embassy, dated Washington, March 14, 1901, informs the Department, at the instance of the Governor-General of Canada, that, in consequence of fishing by means of dynamite being carried on in the vicinity of Old Proprietor Lodge, off Grand Manan, New Brunswick, by both Canadian and United States fishing vessels, it has been necessary to take measures for preventing this illegal method of fishing. The officer commanding the fisheries-protection service has been instructed to seize and confiscate any vessels practicing this destructive method within 3 miles of Old Proprietor Lodge.

New Pulp Mills in Nova Scotia.—Under date of March 23, 1901, Consul Beutelspacher, of Moncton, reports the erection of new pulp mills by the Sissiboo Pulp and Paper Company, at Weymouth. The mills are practically completed, and will be running in full swing in a little more than a week. The daily output of the plant will be 30 tons, for which it is said there will be ready sale in England. The dam which this company has built is among the largest in Canada, viz, 74 feet broad at the base, 450 feet long, and 60 feet high. The hydraulic power consists of two pair of McCormic turbines. The company's other mill is situated at Sissiboo Falls, 3 miles above Weymouth Falls, the site of the new mills.

Cable Connections with the Madeira Islands.—Consul Jones, of Funchal, March 2, 1901, says that the Eastern Telegraph Company has just finished laying a cable from Falmouth to St. Vincent, Cape Verde Islands. It passes through the office of the Western Telegraph Company, Limited, at Funchal, and is worked in connection with the Cape-St. Helena route. The latter company has landed four cables at Funchal—two to Lisbon and two to St. Vincent. One of the Lisbon cables is continued to Brazil and connects that country with Europe. The direct cable route from Funchal to the United States, adds the consul, is via Lisbon and the Azores. The tariff to New York is about 50 cents per word.

Telegraph System in Central Africa.—Consul-General Guenther, of Frankfort, March 25, 1901, says it is reported from Brussels that the central African telegraph line connecting Brazzaville with Loango, on the west coast, has been completed, and that direct communication with Libreville may be had from any station of the English-Atlantic cable. The consul-general adds that the cable from Brazzaville to Stanley Pool, which is being laid to connect with the telegraph system of the Kongo State, will ultimately be extended to Lake Tanganyika, where it will form a conjunction with the German East African system.

Cotton Growing in West Africa.—Under date of February 20, 1901, Consul Williams, of Sierra Leone, reports that Elder, Dempster & Co., of Liverpool, have recently offered, through the governor of Sierra Leone, to furnish either American or Egyptian cotton seed free of cost or freight to anyone desiring to engage in the cultivation of cotton in West Africa. They also offer a prize of £100 (\$486.65) to the shipper of the first cargo of 50 tons by one of their steamers.

Frame Houses for the Canary Islands.—Consul Berliner, of Teneriffe, under date of March 6, 1901, reports that he has a request for plans for frame or wooden houses, ready to be put up without delay. The party making the inquiry is anxious to have circulars or any matter appertaining to this subject, as he is contemplating the building of this class of structures. If the necessary information is sent to the United States consulate at Teneriffe, it will, in the opinion of Consul Berliner, lead to an order.

Reduction in Cost of Coal at Teneriffe.—Consul Berliner, of Teneriffe, under date of March 26, 1901, informs the Department that after April 1, 1901, there will be a reduction of 2s. (48.6 cents) a ton on all coal sold at that port. He adds: The contract price of coal per ton, during the past year, has been 31s. (\$7.53), while the price to vessels not holding contracts has been 33s. 6d. (\$8.03). The new rates will be 29s. (\$7.05) and 31s. 6d. (\$7.65), respectively.

Coal in Galicia.—Consul Hughes sends the following from Coburg, March 22, 1901:

Reports from Lemberg, in Galicia, say that borings for coal near the meeting point of the Austrian, Russian, and German frontiers

have resulted in the discovery of a coal stratum half a meter thick, at a depth of 250 meters (820 feet). Further borings disclosed a layer 295 meters (968 feet) below the surface $1\frac{1}{2}$ meters (4.9 feet) in thickness. This deposit is very favorably situated, near the railway and also near a navigable stream.

American Coal-Cutting Machinery in London.—Vice and Acting Consul-General Westacott, of London, under date of March 16, 1901, reports that an inquiry has been made at that office for the names of firms manufacturing American coal-cutting machinery. He requests that all replies be addressed to the United States consulate-general, London.

English Demand for Blotting Paper.—Acting Consul-General Westacott writes from London, March 16, 1901, for the names of makers of American blotting paper, several inquiries having been made at that consulate-general by persons desirous of obtaining it. It has frequently been remarked by people calling there, he adds, that the quality of blotting paper in use in the office is far superior to anything of English make that can be obtained.

American Tin Plates for France.—Under date of Nantes, March 12, 1901, Consul Brittain writes:

A prominent dealer in Nantes has requested the names of the leading manufacturers of black tin plates in the United States. This gentleman—Alfred Riom, Nantes, France—wishes the plates in a polished condition, ready for tinning. Correspondence should be conducted in French and prices submitted as soon as possible. The gentleman wishes to buy goods direct from the United States, if prices and terms are satisfactory.

German Prize for Cooling Beer.—Consul-General Guenther, of Frankfort, March 21, 1901, informs the Department that the German Brewers' Association has offered a first prize of \$375 and a second prize of \$125 for the best mixture for cooling beer. The composition must not be injurious to health nor cost more than 6d. (12 cents) for a cooling capacity equal to that of 100 pounds of ice, and must maintain the beer at a temperature of 45° to 47° F. Formulas should be sent to Mr. Johann G. Henrich, Neue Zeil, No. 68, Frankfort, Germany.

Acetylene Gas for Light-Houses.—Consul-General Guenther, under date of Frankfort, March 4, 1901, reports that at the light-house of Altenbruch, acetylene gas has been experimented with, as the strongest petroleum light proved too weak for this station. It is stated in German papers that the results were entirely satisfactory, and it is expected that acetylene gas will now be used extensively for light-houses.

Amsterdam Export Company.—Under date of March 16, 1901, Consul Hill, of Amsterdam, reports the formation in that city of a joint-stock company to promote trade between the Netherlands and foreign countries. The organization is styled the Amsterdam-China Handel, and is capitalized at 300,000 florins (\$120,600).

Automobiles for the Fire Department of Hanover.—Consul-General Guenther, of Frankfort, under date of March 15, informs the Department that the city authorities of Hanover, Germany, have just appropriated 80,000 marks (\$19,040) for three automobiles for the use of the city's fire department, provided that they prove satisfactory during a certain trial period.

Public Libraries in Germany.—Consul-General Guenther reports from Frankfort, March 25, 1901:

The Daily Review, of Berlin, states that the Government of Prussia is in favor of establishing public libraries. For cities, permanent libraries and public reading rooms will be maintained, while for the rural districts movable libraries are recommended. Many districts have already voted adequate appropriations. The Government will also give financial aid.

New British-German Cable.—Consul-General Guenther, of Frankfort, under date of March 28, 1901, writes:

Work has been commenced on a new cable between England and Germany, which will be the seventeenth in existence between the two countries. The line runs from Emden to Barton.

English in German High Schools.—Consul-General Guenther reports from Frankfort, March 7, 1901, that the Emperor has decreed that the English language shall be taught in the high schools of Germany, in place of French, which hereafter shall be optional.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
E. Schneegans, Saigon.....	Feb. 14, 1901	Rice-market report.....	Department of Agriculture.
Do.....	Feb. 28, 1901	do.....	Do.
Do.....	Mar. 14, 1901	do.....	Do.
C. B. Hurst, Vienna.....	Mar. 19, 1901	Census of Austria.....	Census Bureau.
R. Guenther, Frankfurt.....	Mar. 22, 1901	Poultry in Prussia.....	Department of Agriculture.
Do.....	Mar. 23, 1901	Child labor in Germany...	Department of Labor.
Do.....	do.....	Wages in Germany.....	Do.
Do.....	Mar. 27, 1901	Judicial decisions on labor.	Do.
Do.....	Mar. 28, 1901	Armor plate.....	Navy Department.
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J. L. Bittinger, Montreal.....	Apr. 11, 1901	Agricultural industry in Canada.	Department of Agriculture.
O. J. D. Hughes, Coburg.....	Mar. 28, 1901	German crops.....	Do.
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Do.....	Apr. 19, 1901	Prison statistics.....	Bureau of Education.
D. Mayer, Buenos Ayres.....	Mar. 18, 1901	Agriculture in Argentina..	Department of Agriculture.
J. D. Hill, Amsterdam.....	Apr. 4, 1901	Sugar in bond.....	Do.
Do.....	May 5, 1901	Emigration via Amsterdam.	Bureau of Immigration.
F. R. Mowrer, Antigua.....	Apr. 22, 1901	Bee keeping.....	Department of Agriculture.
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M. H. Twitchell, Kingston, Ontario.	Apr. 30, 1901	Agricultural conditions..	Do.
F. C. Denison, Woodstock, New Brunswick.	do.....	do.....	Do.
G. W. Roosevelt, Brussels....	Apr. 20, 1901	Aphthous stomatitis.....	Do.
R. M. Bartleman, Valencia....	Apr. 23, 1901	Wheat.....	Do.

FOREIGN REPORTS AND PUBLICATIONS.

Trade and Industry in Liberia.—The Board of Trade Journal, London, January 17, 1901, quotes from the *Moniteur Officiel du Commerce* as follows:

The presence in Liberia of a considerable number of people who live after a European fashion is sufficient to account for certain features in the import trade. The Liberians have, in fact, in some cases developed requirements and tastes similar to those of Europeans—at least, as regards houses, furniture, and articles of dress—and all these tastes and requirements necessitate a considerable importation. At one time, the Liberian would simply pay in so many bags of coffee for any article (clocks, bronzes, carpets, chairs, or even harmoniums) which took his fancy. Now, however, coffee can be bought at Monrovia for about 3 cents per pound, and the Liberian planters can not so easily purchase any "article de luxe" they may desire. Another reason besides the fall in coffee is the system of "ports of entry." The Liberian Government, with the object of fostering national trade, restricts the trade of foreigners to these so-called "ports of entry" and grants to Liberians alone the right of establishing factories in the interior of the country, and so placing the native produce on the market. The insecurity of the trade routes, the hostilities between the various tribes, have had the effect of decreasing to a minimum the number of caravans coming to the ports of entry from the interior. The result is that European commerce has lost and Liberian commerce has not gained by this prohibitive system. Another law, which forbids foreigners—*i. e.*, white people—from owning land, acts also very unfavorably on foreign trade. The land is let on long leases, with option of renewal; but a general sense of insecurity is the result of the system, for the owner of the land can always refuse an extension of lease; and the Government can also, under some pretext of public utility, buy the land and expel the tenant.

Imports into Liberia may be divided into three groups of articles, viz, those solely for the use of the civilized inhabitants, those used by Liberians and natives, and those imported exclusively for natives. In the first category, ready-made clothes, shoes, felt and straw hats, corsets, cravats, shirts, hosiery, etc., hold the largest place. Among other articles of import are lamps, clocks, watches, sewing machines, musical instruments (harmoniums, accordions, musical boxes), and even phonographs. The imports of furniture and household utensils are much less than the imports of these articles a few years ago. In the second category are included preserves and alimentary products—bacon, ham, rice, flour, cod, salted fish, preserved provisions, preserved fruits, biscuits, leaf tobacco, gunpowder, guns of all sorts, machetes and other kinds of knives and swords, wax candles, petroleum, matches, gin, rum, ginger ale, cheap champagnes, sweet wine, soap, washing blue, potash, umbrellas and parasols, hoes, spades and pickaxes, buckets, enameled iron plates, cast-iron plates, copper plates, crockery, etc. The articles imported for the use of the natives are: Cotton cloths, white and colored; silk handkerchiefs, velvet caps, rugs, coral, cornelian and glass pearls, knives, iron trunks, etc. Germany holds the first place in imports, England the second, though it must be noted that a large proportion of the imports from England are of

American origin, notably medicines, rice, flour, preserved fruits, leaf tobacco, and petroleum.

The principal export as regards quantity is coffee, sent chiefly to Liverpool. Caoutchouc from the "bind weed" and various trees found on the west coast has a tendency to take the first place. Caoutchouc is found in all the districts of Liberia. An English firm has a monopoly of the export. *Rafia* has also become an important article of export. It is used for making brooms, brushes, and binding for gardeners. Palm oil and palm seeds are also important articles of export.

Railway Development in Mexico.—The following is taken from the *Revue du Commerce Extérieur*, Paris, February 2, 1901:

The network of Mexican railways continues to develop in a remarkable manner. More than 745 miles of new road were opened to traffic from July 1, 1899, to June 30, 1900. Independently of the construction of branch lines of local interest, the great effort of railway companies at present is directed toward reaching the Pacific coast. A road not connected with the rest of the network runs between the ports of Salina Cruz and of Guaymas. The Mexico-Cuernavaca and Pacific Railroad runs from the capital to Zihuatanejo; the line is finished as far as Rio Balsas, and a branch line will unite this point later with Acapulco.

The Mexican Central is constructing a line, partly finished, which will unite Manzanillo and Guadalajara via Sayula. This powerful company, which is pushing its work with great activity, will be doubtless the first to establish railway communication between Mexico and the Pacific.

The Mexican International has just decided, after expensive studies, to continue its road to the port of Mazatlan.

Much farther to the north, a new company—the Kansas City, Mexico, and Orient Railroad—has chosen the port of Topolobampo as terminal point of a new road which, coming from the United States, will cut the Mexican Central at Chihuahua. This company has acquired the concession and bought 124 miles of the line constructed by the Chihuahua-Pacific Road.

The Southern Mexican, which now stops at Oaxaca, will soon, it is thought, prolong its line to the sea. It is known that the Pearson Company has taken, on a lease for fifty years, the National Tehuantepec line, which it is getting ready for traffic, constructing metallic bridges, correcting the curves and levels, and ballasting the roadbed.

Communication between the Atlantic and Pacific oceans will also be established by a line starting from Veracruz and uniting at Santa Lucrecia with the railway from the Isthmus of Tehuantepec. Santa Lucrecia will be also the point of union for the line which will unite the Peninsula of Yucatan both with the Mexican network and the Pacific Ocean.

Mineral Production of Algeria.—The *Nachrichten für Handel und Industrie*, Berlin, March 25, 1901, says:

From 1896 to 1900, the colony of Algeria exported 3,845,566 tons of minerals, of which 1,136,197 tons were phosphates, 2,553,649 tons iron ore, 3,503 tons copper ore, 16,391 tons lead, and 135,826 tons zinc. The net results of the mineral

production in 1900 were 50,000 tons less than in the preceding year, as the following table shows:

Description	1899.	1900.
	Tons.	Tons.
Phosphates.....	281,113	273,500
Iron.....	633,304	604,053
Copper.....	1,596	24
Lead.....	6,217	2,084
Zinc.....	36,952	30,250
Total.....	950,182	909,911

The decline was important in all branches of the mining production, but the outlook for the year 1901 is far better than that of 1899. Work will be resumed in the Guerromna mines, which have been abandoned since 1893, and a number of projects will be initiated, as new companies with powerful capital have been organized. Many large and rich mineral deposits in the interior can not be developed on account of their distance from the sea and the lack of transportation facilities. The completion of the recently projected railways will have a beneficial effect on the mineral industries, and the colony will become of importance through its mineral wealth.

Minerals of Morocco.—According to an article in *La Gazette Coloniale*, Brussels, March 3, 1901, Morocco is rich in various kinds of minerals. The most widely distributed are copper, lead, zinc, antimony, mercury, and iron; also metals belonging to the platinum group—platinum, iridium, palladium, etc. In some places, manganese and chromium have been discovered, and it is a well-known fact that Morocco possesses large beds of phosphate of lime. The copper ore is very often argentiferous and sometimes auriferous, and is found everywhere in the region of Sous and of Tangier. Iron mines are numerous, and the presence of gold has been quite recently indicated. Lead ore, which is always more or less argentiferous, is frequently found in different parts of North Africa, though usually subordinate to the presence of other metals, as copper and zinc, in the same beds. The mines of Gar Rouban, on the frontier of Morocco, and veins cropping out in various parts of the Empire indicate the abundant presence of this metal.

Mining Industry in Italy.—The following is summarized from *Nachrichten für Handel und Industrie*, Berlin, March 22, 1901:

According to the last published statistics, there are 1,404 mines being worked in Italy, giving occupation to 57,000 workmen, and their yearly output is valued at \$13,896,000. Iron comes first with 200,000 tons; zinc shows 132,000 tons; and lead, 32,000 tons. The copper mines, however, show the greatest increase. Ten years ago there were only 11 mines, with 1,500 workmen and a production of 22,682

tons. At the present time, there are 26 mines, with 1,500 workmen and a production of 95,000 tons. In 1890, the sulphur mines in Sicily and Romagna yielded 300,000 tons, against 500,000 tons in 1899. Besides this, manganese, antimony, quicksilver, and asphalt are mined. The gold and silver production of Italy is hardly worth mentioning. The marble quarries in the last ten years have taken on a wonderful expansion, having more than doubled their output. The quarries of Carrara alone in the year 1899 produced 280,000 tons, of which 100,000 tons were exported.

Agriculture and Trade in Turkestan.—The *Nachrichten für Handel und Industrie*, Berlin, February 12, 1901, quotes the following from the *St. Petersburg Zeitung*:

The cultivation of cotton easily ranks first in industry, the Transcaspian district having 21,598 acres in cotton and the Ssyrdarja district 67,472 acres. The export of cotton from the Samarkand district is figured at 16,260 tons.

Silkworm growing is increasing in this district, and 189,490 gallons of good wine of the country were exported last year. The climate is admirably adapted to the cultivation of the vine. Recently, in the Ssyrdarja district, experiments have been made in beet-sugar cultivation, with the most surprising results, the high proportion of 23 per cent of sugar being obtained. The Ssemirtschje district has long been known as the granary of middle Asia.

The mineral wealth of Turkestan consists chiefly of salt, of which some 16,260 tons are produced yearly in the Transcaspian. Naphtha is another mineral product capable of further development; the annual output is about 1,630 tons. Gypsum, sulphur, saltpeter, and asphalt are produced in smaller quantities. In the district of Samarkand, besides salt, anthracite coal and marble are found, and rich discoveries of graphite, lead, and sulphur have been made.

Petroleum in Persia.—The *Nachrichten für Handel und Industrie*, Berlin, January 11, 1901, says:

According to a communication from a Belgian company in Teheran, a petroleum spring has been recently discovered in the village of Talish, near the Caspian Sea, of whose existence the authorities were ignorant until a proposition for its development was submitted to them by a foreigner. From inquiries made by the Government, it has been found that this spring was already known and worked by the villagers before the Russo-Persian war. At that time, to prevent its falling into the power of the enemy, the spring was filled up and covered, all trace of it being completely lost. Borings show that the source is not very deep below the surface of the ground. Naphtha resembling the product of the Baku has been found. So far, the Government has refused to grant a concession to foreigners until it is decided whether a native company may be formed for its development.

Telegraphic Network of Angola.—An article published in *La Gazette Coloniale*, Brussels, April 21, 1901, states that the extension of the telegraphic network of Angola in 1900 was 1,610 kilometers (1,000 miles). Several important lines were finished, viz,

those uniting Loanda with the Kongo and to Novo Redondo. During the last five years, the line from Mossamedes to Humpasa, 134 miles, has been built, and from Humpasa to Chibia, 30 miles, thus placing the principal points of the plateau of Chella in communication with the colonies established there. The lines from Dondo to Malange, 153 miles, and from Rassoalata to Lucalia, 100 miles, have been completed, both useful in the commercial and administrative relations of the province. The telegraphic line from the Kongo has been finished as far as Quinzau (135 miles); the section toward San Antonio remains to be constructed. This line is of considerable importance, permitting, as it will, telegraphic communication with Europe and all the region of the Kongo. The line from Novo Redondo to Dondo (152 miles) is nearly completed; this will be extended from Amboim to the River Longa. The importance of this network is evident; it has not only an economic, but an administrative significance. The average cost per kilometer (0.62137 mile) was estimated in the beginning at \$81, but recently it has been reduced to \$57.

Railway in Portuguese West Africa.—The following is taken from the *Revista Portuguesa*, March 20, 1901:

The engineers and other personnel charged with the technical work for completing the preliminary studies for the projected railway from Benguela to the frontier have begun their labors. The first task will be to locate the line already traced and for which bids for construction have been asked; then, to correct the surveys for the section between Benguela and Lobito. These works should be finished in a short time. The part of the line between Benguela and Catumbella is of great importance, since the last locality is the center from which the caravans start for the interior. It is expected that the work of construction will be begun at once, and afterwards surveys will be made toward the interior, where the utility of a line is evident, since it will facilitate the exploration of a most fertile country and one well adapted to European colonization.

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Full directions for binding the Consular Reports are given in No. 131, page 663.

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

V.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Flies in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Slave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation, School Gardens; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1893, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1901, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1896, and in the quarterly valuations thereafter.

XII VALUES OF FOREIGN COINS AND CURRENCIES.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, and 1884-1887 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U. S. gold.	Coins.
Argentine Republic.	Gold and silver.	Peso.....	\$1.00, 5	Gold—argentine (\$4.82, 4) and $\frac{1}{2}$ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown.....	.20, 3	Gold—20 crowns (\$4.05, 4) and 10 crowns.
Belgium	Gold and silver.	Franc.....	.19, 3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil.....	Gold	Milreis.....	.54, 6	Gold—5, 10, and 20 milreis; silver— $\frac{1}{2}$, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do .....	.....do	1.00	
Chile.....	.....do	Peso.....	.36, 5	Gold—escudo (\$1.25), doubloon (\$3.65), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46, 5	Gold 2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centimos.
Cuba	Gold and silver.	Peso.....	.92, 6	Gold—doubloon (\$5.01, 7); silver—peso (50 cents).
Denmark	Gold	Crown.....	.20, 8	Gold—10 and 20 crowns.
Egypt.....	.....do	Pound (100 piasters).	4.94, 3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland.....	.....do	Mark.....	.19, 3	Gold—10 and 20 marks (\$1.93 and \$3.85, 9).
France	Gold and silver.	Franc.....	.19, 3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany.....	Gold	Mark.....	.23, 8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling..	4.86, 6 $\frac{1}{2}$	Gold—sovereign (pound sterling) and half sovereign.
Greece.....	Gold and silver.	Drachma.....	.19, 3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti.....	.....do	Gourde.....	.96, 5	Silver—gourde.
India *.....	Gold	Rupee.....	.32, 4	Gold—sovereign (\$4.86, 5); silver—rupee and divisions.
Italy.....	Gold and silver.	Lira .....	.19, 3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan †.....	Gold	Yen.....	.49, 8	Gold—1, 2, 5, 10, and 20 yen.
Liberia.....	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver.	Florin.....	.40, 2	Gold—10 florins; silver— $\frac{1}{2}$, 1, and $\frac{1}{2}$ florins.
Newfoundland	Gold	Dollar.....	1.01, 4	Gold—\$2 (\$2.02, 7).
Peru \$.....	.....do	Sol .....	.48, 7	Gold—libra (\$4.86, 5); silver—sol and divisions.
Portugal.....	.....do	Milreis.....	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ‡.....	.....do	Ruble.....	.51, 5	Gold—imperial (\$7.718) and $\frac{1}{2}$ imperial (\$3.80); silver— $\frac{1}{4}$, $\frac{1}{2}$, and 1 ruble.
Spain.....	Gold and silver.	Peseta.....	.19, 3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26, 8	Gold—10 and 20 crowns.
Switzerland	Gold and silver.	Franc.....	.19, 3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey.....	Gold	Piaster.....	.04, 4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay .....	.....do	Peso.....	1.03, 4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver.	Bolivar.....	.19, 3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

‡ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

\$ Gold standard adopted October 13, 1900.

‡ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 254.

B.—Countries with fluctuating currencies, 1874-1896.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver.....	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.33,6	\$0.42
Bolivia.....	do.....	Dollar until 1880: boliviano there- after.	.6,5	.6,5	.81,2	.69,9	.68	.85
Central America.....	do.....	Peso.....	.96,5	.91,8	.....	.69,9	.68	.85
China.....	do.....	Haikwan tael.	1.61	.....	.....	.....	.....	.....
Colombia.....	do.....	Peso.....	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador.....	do.....	do.....	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt.....	Gold.....	Pound (100 piasters).	.....	4.97,4	4.99	4.94,3	.....	.....
India.....	Silver.....	Rupee.....	.45,8	.43,6	.38,6	.34,2	.32,3	.40,4
Japan.....	Gold.....	Yen.....	.99,7	.99,7	.....	.99,7	.99,7	.99,7
	Silver.....	do.....	.....	.....	.87,6	.75,3	.73,4	.91,7
Mexico.....	do.....	Dollar.....	1.24,74	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡.....	Gold and Silver.	Florin.....	.40,5	.38,5	.....	.....	.....	.....
Peru.....	Silver.....	Sol.....	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia.....	do.....	Ruble.....	.77,17	.73,4	.65	.55,9	.44,4	.68
Tripoli.....	do.....	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1895.	1896.
Austria-Hungary*.	Silver.....	Florin.....	\$0.38,1	\$0.34,1	.....	.....	.....	.....
Bolivia.....	do.....	Boliviano.....	.77,1	.62,1	\$0.61,3	\$0.51,6	\$0.45,5	\$0.49,1
Central America.....	do.....	Peso.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Colombia.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Ecuador.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
India.....	do.....	Rupee.....	.36,6	.32,8	.29,2	.24,5	.21,6	.23,3
Japan.....	do.....	Yen.....	.83,1	.74,5	.66,1	.55,6	.49,1	.52,9
Mexico.....	do.....	Dollar.....	.83,7	.75	.66,6	.56	.49,5	.53,3
Peru.....	do.....	Sol.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Russia.....	do.....	Ruble.....	.61,7	.55,3	.49,1	.41,3	.36,4	.39,3
Tripoli.....	do.....	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.41,1	.44,3

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40,2 cents.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1898.				1899.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	\$0.42,4	\$0.40,9	\$0.41,8	\$0.43,6	\$0.43,9	\$0.43,4	\$0.44,3	\$0.43,6
Central America	Silver peso.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
China	Amoy tael .....	.68,5	.66,2	.67,6	.70,6	.71	.70,2	.71,6	.70,5
	Canton tael.....	.68,3	.66	.67,4	.70,4	.70,8	.70	.71,1	.70,3
	Chefoo tael.....	.65,5	.63,3	.64,6	.67,5	.67,9	.67,2	.68,4	.67,4
	Chinkiang tael..	.66,9	.64,6	.66	.69	.69,3	.68,6	.69,9	.68,9
	Fuchau tael .....	.63,4	.61,2	.62,5	.65,3	.65,6	.65	.66,2	.65,2
	Halkwan tael....	.69,7	.67,3	.68,8	.71,8	.72,2	.71,4	.72,8	.71,8
	Hankau tael.....	.64,1	.61,9	.63,2	.66	.66,4	.65,7	.67	.66
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael .....	.64,3	.63	.65	.67,9	.68,2	.67,5	.68,8	.67,8
	Niuchwang tael.	.65,9	.62	.63,4	.66,2	.66,5	.65,9	.67,1	.66,1
	Shanghai tael...	.62,6	.60,4	.61,7	.64,5	.64,8	.64,1	.65,4	.64,4
	Swatow tael.....	.63,3	.61,1	.62,4	.65,2	.65,5	.64,9	.66,1	.65,1
	Takao tael .....	.66	.66,6	.68	.71	.71,4	.70,7	.72	.71
	Tientsin tael....	.66,4	.64,1	.65,5	.68,4	.68,8	.68	.69,4	.68,3
Colombia	Silver peso.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
Ecuador	do.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
India	Silver rupee†...	.20,1	.19,2	.19,9	.20,7	.20,8	.20,6	.21	.20,7
Mexico	Silver dollar.....	.46	.44,4	.45,4	.47,4	.47,7	.47,2	.48,1	.47,4
Persia	Silver kran.....	.07,8	.07,5	.07,7	.08	.08,1	.08	.08,2	.08
Peru	Silver sol.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6

Countries.	Monetary unit.	1900.				1901.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1
Central America	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1
China	Amoy tael .....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7
	Chinkiang tael..	.67,5	.68,8	.69,3	.71,2	.74	.71,2
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5
	Halkwan tael....	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2
	Hankau tael.....	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2
	Hongkong tael..	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4
China	Shanghai tael...	.63,2	.64,4	.64,8	.66,6	.69,2	.66,6
	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4
	Takao tael.....	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4
	Tientsin tael....	.67	.68,3	.68,7	.70,7	.73,4	.70,7
Colombia	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1
Ecuador	do.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1
India	Silver rupee†...	.20,3	.20,7	.20,8			
Mexico	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49
Persia	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3
Peru	Silver sol.....	.42,7	.43,6	.43,8	.45,7		

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† The sovereign is the standard coin of India, but the rupee is the money of account.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal.....	4.422 gallons.
Ardeb.....	Egypt.....	7.6927 bushels.
Are.....	Metric.....	0.02471 acre.
Aröbe.....	Paraguay.....	25 pounds.
Arratel or libra.....	Portugal.....	1.011 pounds.
Arroba (dry).....	Argentine Republic.....	25.3175 pounds.
Do.....	Brazil.....	32.38 pounds.
Do.....	Cuba.....	25.3664 pounds.
Do.....	Portugal.....	32.38 pounds.
Do.....	Spain.....	25.36 pounds.
Do.....	Venezuela.....	25.4024 pounds.
Arroba (liquid).....	Cuba, Spain, and Venezuela.....	4.363 gallons.
Arshine.....	Russia.....	28 inches.
Arshine (square).....	do.....	5.44 square feet.
Artel.....	Morocco.....	1.12 pounds.
Baril.....	Argentine Republic and Mexico.....	20.0787 gallons.
Barrel.....	Malta (customs).....	11.4 gallons.
Do.....	Spain (raisins).....	100 pounds.
Berkovets.....	Russia.....	361.12 pounds.
Bongkal.....	India.....	832 grains.
Bouw.....	Sumatra.....	7.0075 square meters.
Bu.....	Japan.....	0.1 inch.
Butt (wine).....	Spain.....	140 gallons.
Caffiso.....	Malta.....	5.4 gallons.
Candy.....	India (Bombay).....	509 pounds.
Do.....	India (Madras).....	500 pounds.
Cantar.....	Morocco.....	113 pounds.
Do.....	Syria (Damascus).....	575 pounds.
Do.....	Turkey.....	124.706 pounds.
Cantaro (cantar).....	Malta.....	175 pounds.
Carga.....	Mexico and Salvador.....	300 pounds.
Catty.....	China.....	1.333 $\frac{1}{3}$ (1 $\frac{1}{3}$) pounds.
Do.....	Japan.....	1.31 pounds.
Do.....	Java, Siam, and Malacca.....	1.35 pounds.
Do.....	Sumatra.....	2.12 pounds.
Centaro.....	Central America.....	4.2631 gallons.
Centner.....	Bremen and Brunswick.....	117.5 pounds.
Do.....	Darmstadt.....	110.24 pounds.
Do.....	Denmark and Norway.....	110.11 pounds.
Do.....	Nuremberg.....	112.43 pounds.
Do.....	Prussia.....	113.44 pounds.
Do.....	Sweden.....	93.7 pounds.
Do.....	Vienna.....	123.5 pounds.
Do.....	Zollverein.....	110.24 pounds.
Do.....	Double or metric.....	220.46 pounds.
Chetvert.....	Russia.....	5.7748 bushels.
Chih.....	China.....	14 inches.

* More frequently called "kin." Among merchants in the treaty ports it equals 1.33 $\frac{1}{3}$ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,098 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8,077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Dessiatine.....	Russia.....	2,6997 acres.
Do.....	Spain.....	1,599 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS NO. 144.)	
Fanega (dry).....	Central America.....	1,5745 bushels.
Do.....	Chile.....	2,575 bushels.
Do.....	Cuba.....	1,599 bushels.
Do.....	Mexico.....	1,5478 bushels.
Do.....	Morocco.....	Strike fanega, 70 lbs.; full fanega, 118 lbs.
Do.....	Uruguay (double).....	7,776 bushels.
Do.....	Uruguay (single).....	3,888 bushels.
Do.....	Venezuela.....	1,599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddan.....	Egypt.....	1.03 acres.
Frail (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2,506 quarts.
Do.....	Mexico.....	2.5 quarts.
Frasila.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Funt.....	Russia.....	0.9028 pound.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	do.....	2.471 acres.
Hectoliter:		
Dry.....	do.....	2.838 bushels.
Liquid.....	do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1,422 acres.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2,2046 pounds.
Kilometer.....	do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Koku.....	Japan.....	4,9629 bushels.
Korree.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	8.28 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	2 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	113½ bushels.
Do.....	Spain (salt).....	4,760 pounds.
League (land).....	Paraguay.....	4,633 acres.
Li.....	China.....	2,115 feet.
Libra (pound).....	Argentine Republic.....	1,0127 pounds.
Do.....	Central America.....	1,043 pounds.
Do.....	Chile.....	1,014 pounds.
Do.....	Cuba.....	1,0161 pounds.
Do.....	Mexico.....	1,01465 pounds.
Do.....	Peru.....	1,0143 pounds.
Do.....	Portugal.....	1,011 pounds.
Do.....	Spain.....	1,0144 pounds.
Do.....	Uruguay.....	1,0143 pounds.
Do.....	Venezuela.....	1,0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter.....	Metric.....	1.0567 quarts.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Guiana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	1½ acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Maud.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1493 miles.
Morgen.....	Prussia.....	0.65 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.82838 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands.....	137.9 pounds.
Pie.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile, * Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5½ pounds.
Sagen.....	Russia.....	7 feet.
Salm.....	Malta.....	490 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	Do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	Do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland.....	Do.....	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo.....	Japan.....	6 feet square.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0358 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

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No. 250.

TEAK INDUSTRY OF SIAM.

One of the principal industries of Siam is the teak-lumber business. Teak is the most valuable lumber for shipbuilding in the world. It does not yield to the influences of moisture and drought; it is not liable to the attack of borers and other insects; it does not split or sprawl; and, while it is a strong, durable wood, it is easy to work and very light in the water. As a beautiful, dark-colored wood susceptible of a very high degree of finish, it will continue to be in demand wherever fine finishing lumber is needed in shipbuilding, and because of its peculiar qualities that resist the influences of iron when brought in close contact therewith, there is no substitute for it yet discovered as the backing for armor plates in vessels of war.

Because of the attention given at this time to our Navy and merchant marine, information on this subject should be of interest in the United States.

The area of the earth's surface in which valuable teak forests are found is not extensive, being restricted to Burma, Siam, and Cochin China. Some teak has been found in Java, but it is not of a superior quality, and as yet the forests of Cochin China and a part of Siam are inaccessible. The limit of their area and the increasing demands now made upon these forests, because of the rapid growth of shipping throughout the world, is presenting a problem which the British Government has attempted to solve by

planting new forests; but many of these attempts have proved failures, and at best it takes from sixty to eighty years to grow a tree large enough for superior lumber.

There are but three ports in the world from which teak is exported—Rangoon, Moulmein, and Bangkok. Of these, Rangoon stands first and Bangkok and Moulmein rank about equal in the amount exported.

The term "teak forest" is a misnomer, for the teak trees do not form a forest as the term is understood in America, but generally are rather found in clumps, or perchance as individual trees, in forests and jungle among other timber. This wood grows upon the mountain sides and in high, broken country, and is segregated to the extent of one tree for every ten or one hundred trees of other kinds throughout the forest in which it is found. It is much more expensive to work such timber out to the streams than it is to work the forests of America, where the trees grow nearer together and roads are constructed by which the entire product can be removed.

It is this heavy timber thus scattered that renders the use of the elephant in the teak forests imperative, for teams of any kind would be prevented from doing the work by the dense jungle. This great beast, accustomed to making his way through the undergrowth, is strong enough alone to handle the logs and work them to the stream. But elephants are expensive and at the same time are singularly delicate animals. On an average, an elephant will work only five hours a day five days in the week and seven months in the year. And even at this, he must be handled with the greatest care, and the owner is fortunate who escapes with not more than 5 per cent loss per annum by death.

Siam furnishes about one-fourth of the teak of the world, and the quality of the teak timber found here probably ranges with the best. It is customary for trade reports to rate it second to Burmese teak; but all these reports come from British sources, and the British control the teak interests of Burma. The British Admiralty contracts have for many years been placed in Burma, and that department is proverbially slow in accepting a change; again, greater experience there may have resulted in greater care in manufacturing the product for the market. Be that as it may, the streams that bear the Burmese and the Siamese teak to the seas pierce the same regions and find their product in the same forests.

The teak forests of Siam are situated in the upper provinces at a distance of several hundreds of miles from the capital, Bangkok, with which they are brought into communication by the River "Chow Phya," commonly called the Menam, and its tributaries. In these forests, which are leased for terms of years to the upcountry

traders, the trees are first "girdled"—that is to say, at the proper season of the year the bark and sap are cut through all round the trunk close to the ground, in order to make the wood lighter and better for land and water transport before it is carried away, and to prevent what is known in America as sap rot. This is rendered unnecessary in countries where the cold of winter drives the sap out of the trees and thus prepares them for the lumberman through nature's own process. This operation must be completed at least two years before the trees are cut. The trees are then felled at the proper time and made ready for transport. They are afterwards hauled by means of elephants to the creek or small stream which is nearest to them. These several operations—girdling, felling, and transporting to the creek—require a period of about three or four years; but it is after the butts reach the creek side that the most formidable causes of delay begin to operate. Even if the season should be favorable and the brooks full of water, the logs float at a slow pace down them, and have to be worked forward with the aid of elephants by the process called "ounging" until they reach the larger streams. Here, their progress is impeded by blocks and obstacles of all kinds, and the assistance of elephants is still needed. The transport of a number of logs, after arriving at the larger streams, to the rapids—about 150 miles—requires on an average four months (in a good season), and thence downward to Bangkok, seven to ten weeks. Under the most favorable circumstances, they may reach Bangkok in six months from the time of arriving at the main streams, or three and a half years from the time of being girdled in the forest.

Unfortunately, it is by no means in every year that there is enough water in the creeks to float the logs at all, and still less certain is it that they will be floated as far as the deep stream before the floods subside. Out of ten years, there will not usually be more than two or three when there are full floods, and three or four when there are floods of average height and duration. The other three or four or even five years will be "dry" years, and will only permit of a very small quantity of wood being brought out of the forests.

Thus, taking one thing with another and allowing for the average delay caused by more or less dry seasons, it appears that from the time when money begins to be expended upon a teak tree until it arrives in Bangkok and can be exported a period of from three and one-half to seven years, or even more, must elapse, during the whole of which money continues to be expended on the tree, either in working it or watching it, while no returns can be had. Besides the actual expenses of felling and transporting by land and by water, there is the royalty to be paid to the lessor of the forest and the Government royalties payable on the main river. It is also

necessary to keep a considerable staff of watchers to guard against the continual pilfering of logs and against fires.

From the foregoing, it will be easily conjectured that a very large capital is needed for persons engaging in the upcountry teak trade, and the capitalists who embark in this business must be content to see their money locked up for a very long time before profits can come in. If a bad year—*i. e.*, a dry season—should occur, no profit can, for the time being, be expected; and if this should be followed by a second bad season, it will be impossible either to make any profit or even to pay the interest on the capital expended. Hence it happens that in contracting loans in this business and making arrangements with the lessees of forests, a long period of years is included in the compact, so as to allow of the very gradual repayment of the sums advanced. In many cases, no interest is paid upon such loans for several years, while the wood is being worked down to Bangkok, and then, out of the ultimate proceeds of sale, are paid at length arrears of interest which reach sometimes an almost incredibly large sum. If a season is good, the trader pays the interest readily and willingly; if it is bad, he is obliged to hold it over, much against his will, for the rate of interest is heavy in Siam, and, in the case of many traders who are “men of straw,” exorbitant.

As it is with the lessees and head contractors, so it is with the subcontractors and foresters. These latter invariably obtain advances from the lessees and repay them in kind, with interest in good seasons. It is an unheard-of thing for these people to pay interest in money; and a lessee who attempted to enforce such payment would not only fail to obtain it, but also forfeit his chance of obtaining contractors in the future. On the contrary, when the interest on loans to subcontractors is unpaid, owing to dry seasons, it is necessary to advance them fresh capital, in order that they may be able in a better year to deliver the wood which they owe.

The logs, when felled, and before being transported, are stamped with the owner's hammer mark. Having reached the creeks, and having been floated down river past the rapids, they are made up into rafts, which are dispatched en route to Bangkok in charge of raftsmen who understand the business and generally work for a single employer, between whom and themselves there is mutual confidence. The task of these men, as well as of those who work the logs down to the making-up stations, is one of great responsibility. They have to contend with the great difficulties of navigation and to guard against the machinations of the timber thieves who infest the water courses. Occasionally, notwithstanding the utmost vigilance, a raft will break up; and then an immense amount of energy is required to collect the logs and save them from plunder.

One of the most important advantages of an upcountry teak trader is that of being always able to command the services of able and trustworthy rafters, and one of the most serious injuries which anyone can inflict upon a lessee is to destroy or impair the confidence of the rafters in his credit and prospects.

The teak trader must also find and keep reliable and well-paid agents at the principal towns on the river where the rafts are made up, and at the station where the duties are levied. He must, during his visits to Bangkok and to places within his district, intrust his valuable elephants and other movable property to the charge of employees who, if not punctually paid, are apt to levant with the animals or other things and sell them at more or less ridiculous prices for their own benefit.

In short, the teak trader of the forest must have at his command a very large reserve of capital, to be employed during bad years in keeping up the huge staff which is absolutely necessary for successfully carrying on his business.

The cost of working teak in Siam has been greatly enhanced during the last ten years. The royalties to the Government have increased 200 per cent, the price of elephants has increased over 100 per cent, and the cost of labor to work the forests has advanced over 200 per cent; and to this increase has been further added a heavy difference in exchange, which works to the disadvantage of the producer.

The limited area of the forests from which the supply for the future must come, the restrictive measures now being imposed by the Government on those working concessions already granted and the refusal to grant new concessions, and the increasing demand year by year, together with the above-mentioned advance in cost of production, argue a material rise in the prices of teak in the near future. Notwithstanding all this, prices are ranging comparatively low just now, because of large purchases having been made in anticipation of this expected advance, and because the past season has been phenomenally favorable for bringing teak down to the market.

Again, the teak market of the future promises to be more steady than it has been in the past, because of the elimination of the small traders from the business. There were many of these in the earlier days, but they have been gradually crowded out by the circumstances already mentioned in this report. These small traders, being unable to hold their product for any length of time, were obliged to sell when their rafts came to the local market for whatever prices they could realize; and on account of the large number of these men in the trade, this often caused a decided fluctuation in the market.

Beyond the head waters of the Menam in northern Siam, and on the other side of the divide which forms the water head that separates the waters of the Menam and the Mekong rivers, are large tracts of virgin teak forests of splendid quality. The Mekong penetrates this region 2,500 miles from its mouth; but its rapids and waterfalls render rafting impossible and must prove destructive to individual logs in their journey to the sea. Thus shut off from approach from the north and inaccessible from the south because of the mountain range, these valuable forests will probably remain undeveloped for years to come—buried treasure for the future of Siam.

By courtesy, I am permitted to use the following tables:

Import, consumption, and stock of East India teak for Europe, 1891 to 1900.

Year.	Ports of shipment.			Import.	Consumption.	Stock.
	Moulmein.	Rangoon.	Bangkok.			
	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>
1890 (December 31).....						48,414
1891.....	13,831	26,089	15,202	56,022	59,343	45,093
1892.....	13,565	25,202	5,630	44,397	45,598	43,892
1893.....	17,129	24,850	1,935	38,914	42,433	40,373
1894.....	14,349	27,720	8,269	50,347	55,060	35,660
1895.....	13,544	34,050	20,700	68,294	61,513	42,441
1896.....	21,075	28,592	22,361	72,028	77,885	36,584
1897.....	21,454	33,309	18,538	73,301	62,693	47,190
1898.....	12,418	46,957	12,707	71,102	75,433	42,861
1899.....	9,538	45,198	11,900	66,636	77,986	31,511
1900.....	15,505	49,385	12,254	*77,144	66,375	42,880

NOTE.—The tonnage chartered January 1 for the export to Europe for 1901 amounted to 11,190 tons, of which 4,541 tons were from Burma and 6,649 tons from Bangkok.

* Oversea deliveries from London to continental ports, estimated at about 5,000 loads, are not included in this total.

Import, consumption, and stock of East India teak in the Thames, 1891 to 1900.

Year.	Ports of shipment.			Import.	Consumption.	Stock.
	Moulmein.	Rangoon.	Bangkok.			
	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>
1890 (December 31).....						9,763
1891.....	4,393	8,075	4,299	19,794	14,110	12,408
1892.....	2,452	4,443	1,205	8,100	10,562	9,946
1893.....	4,604	8,103	29	12,636	12,869	9,713
1894.....	2,870	4,352	785	8,007	10,444	7,276
1895.....	2,841	13,460	5,119	21,420	18,059	10,637
1896.....	9,441	12,214	3,013	24,668	23,379	11,026
1897.....	11,169	13,325	826	25,320	18,880	18,366
1898.....	2,271	10,900	2,341	15,512	20,871	13,016
1899.....	2,549	18,772	1,408	22,729	26,918	8,887
1900.....	6,357	17,103	1,893	25,353	19,279	14,961

HAMILTON KING,
BANGKOK, March 30, 1901.

Consul-General.

JAPANESE INVESTMENTS OF CAPITAL.

Consul Lyon sends from Hiogo, April 6, 1901, clipping from the Kôbé Chronicle, showing the enormous expansion in Japan of capital invested in joint-stock companies since the war with China. The article reads:

SHARES AND COMPANIES IN JAPAN.

A very interesting series of articles is in course of publication by the Chugai Shogyo Shimpô on the economical situation in Japan, which incidentally shows what an enormous expansion has taken place since the war in the capital invested in joint-stock companies. Our contemporary apparently regards the depression of trade as due in some part to this fact, combined with the undertaking of too many public works by the Government. The following table shows the amount of capital invested in agricultural, commercial, industrial, and financial companies in 1899, compared with the figures for 1895.*

Companies.	Amount of capital.		Increase in 1899.
	1899.	1895.	
<i>Agricultural companies.</i>			
Tea and orchards.....	\$84,000	\$9,000	\$75,000
Whaling.....	180,000	45,000	135,000
<i>Manufacturing companies.</i>			
Saké brewing.....	3,066,000	660,000	2,406,000
Sugar refining.....	1,209,000	333,000	876,000
Tobacco manufacturing.....	5,708,000	51,000	5,657,000
Medicine.....	1,505,000	757,700	748,000
Cotton spinning.....	15,136,000	9,328,000	5,828,000
Cotton weaving.....	1,087,000	781,000	1,206,000
Woolen work.....	1,183,000	277,000	906,000
Electric light.....	3,954,000	1,576,000	2,378,000
Machinery manufacturing.....	1,226,000	247,000	1,009,000
Shipbuilding.....	2,505,000	399,000	2,106,000
Paper mills.....	3,121,000	1,295,000	1,826,000
Petroleum.....	1,442,000	463,000	979,000
Tiles and brick manufacturing.....	1,083,000	322,000	761,000
Cement.....	2,030,000	651,000	1,388,000
Coal mining.....	7,120,000	506,000	6,614,000
<i>Commercial and financial companies.</i>			
Cereals.....	2,926,000	342,000	2,584,000
Sugar.....	634,000	50,000	584,000
Raw cotton and cotton yarn.....	918,000	162,000	746,000
Silk cocoons and raw silk.....	955,000	266,000	689,000
Textile goods.....	2,120,000	601,000	1,519,000
Timber and lumber.....	579,000	78,000	491,000
Land and houses.....	909,000	246,000	653,000
Warehousing.....	2,353,000	643,000	1,710,000
Banking and money lending.....	157,715,000	39,685,000	68,030,000
<i>Construction and engineering.</i>			
Insurance.....	4,914,000	2,236,000	2,678,000
Theater.....	471,000	27,000	450,000
<i>Transport business.</i>			
Marine.....	19,341,000	6,847,000	12,494,000
Railway.....	78,483,000	36,686,000	41,857,000

* The values, stated in yen in the original, are here given in the United States equivalents, in round numbers.

It will be seen from the above table that the increase in the capital of the commercial companies under the head banking and money lending, and among the manufacturing companies in cotton spinning and tobacco manufacturing, is very considerable indeed. Even in the case of the other businesses, the increase in the four years in each case exceeds 1,000,000 yen. It must be remembered that the above returns do not include what may be called private undertakings as opposed to joint-stock companies. If these be included, the increase in capital will appear as follows:

Companies.	1899.	1905.	Increase.
Agricultural.....	\$1,143,000	\$761,000	\$382,000
Commercial and financial.....	167,751,000	49,893,000	117,858,000
Manufacturing.....	73,891,000	29,364,000	44,527,000
Transport by sea and land.....	99,073,000	44,980,000	54,093,000
Grand total.....	349,360,000	124,999,000	224,361,000

It will thus be seen that under the head of "commercial and financial" the increase in capital for the four years amounts to the enormous total of \$117,858,000 and in "transport" to \$54,093,000. To the capital strictly so called must be added the sums raised by debentures by the various joint-stock companies, which are thus compared with the figures for 1895:

Companies.	1899.	1895.	Increase.
Commercial companies.....	\$910,000	\$991,000	.....
Manufacturing companies.....	3,025,000	1,930,000	\$1,095,000
Railway companies.....	5,558,000	2,885,000	2,673,000
Banks.....	3,929,000	.....	3,929,000
Total.....	13,422,000	5,806,000	7,617,000

Adding the increase of debentures during the four years (\$7,697,000) to the capital of companies, we reach a total of \$223,000,000, in round numbers, as the total increase in the capital invested in business in Japan since the conclusion of the Japan-China war. It is not surprising that such an enormous increase should excite serious questioning among Japanese economists, but we venture to suggest that it shows an alteration in the course of business or in the direction taken by investments rather than an actual expansion of capital. However, the figures are well worth the study of economists.

LAND TITLES OF FOREIGNERS IN JAPAN.

Consul-General Bellows writes from Yokohama, March 25, 1901:

Both houses of the Japanese Diet have passed a law which materially affects land titles held by foreigners and thus settles some much-vexed questions relating to perpetual leases and superficies. A translation of this law, as published in the Japan Mail of this morning, which I am assured is official, is as follows:

LAW RELATING TO RIGHTS OF PERPETUAL LEASES.

ARTICLE I. A right of perpetual lease created in favor of foreigners or foreign juridical persons by a title deed of perpetual lease issued by the Government shall be a *jus in rem*, and the provisions of the civil code relating to ownership shall be correspondingly applicable thereto.

A right of perpetual lease may be the object of other rights in accordance with the provisions of the civil code.

The provisions of the two preceding paragraphs shall not apply in cases otherwise regulated by the title deed, treaties, laws, or ordinances.

ART. II. When a transfer or transmission of a right of perpetual lease takes place, such transfer or transmission can not be set up against third parties unless the fact has been recorded on the title deed by the local authorities within whose jurisdiction the land is situated.

ART. III. The registration tax shall not be imposed on the registration of a right of perpetual lease itself, nor on the registration of rights having as their object a right of perpetual lease.

ART. IV. Special provisions may be enacted by imperial ordinance with reference to the registration of a right of perpetual lease, or the registration of rights having as their object a right of perpetual lease, or the registration of buildings erected on land held under a perpetual lease.

SUPPLEMENTARY REGULATIONS.

ART. V. This law shall take effect from the day of its promulgation.

ART. VI. The provisions of article 45 of the law relating to the operation of the civil code shall be abolished from the day of operation of this law.

ART. VII. A right of perpetual lease or a right having as its object a right of perpetual lease, which has been respectively registered, prior to the operation of this law, as a superficies, or as a right having as its object a superficies, shall have the same validity as a right of perpetual lease or as a right having as its object a right of perpetual lease, duly registered as such.

FOREIGN ENTERPRISES IN KOREA.

Minister Allen writes from Seoul, February 26, 1901:

The American firm of Collbran & Bostwick has received the contracts for a highway 18 miles long, to cost 285,000 yen (\$141,930), and for the extension along this road of the present electric street railway, to cost 720,000 yen (\$358,560), in connection with an electric-lighting plant for the city of Seoul. The same firm has a contract for the erection of a bank and office building in Seoul to cost 70,000 yen (\$34,860) and for purchasing nickel blanks sufficient for the coinage of nickel 5-cent pieces to the value of \$2,000,000. It has also secured the contract for the system of waterworks for the city, which will cost in the neighborhood of 3,000,000 yen (\$1,494,000), to be paid for by a loan secured upon the Korean customs revenues. Capable engineers are now making a survey for this work.

American mines in Korea are being successfully worked; the permanent staff of Americans engaged in these mines numbers some seventy men, eighteen having recently arrived. The German mines do not appear to be so satisfactory, and they are agitating the question of a railroad to connect Seoul with Gensan, a port upon the

east coast; this road would tap the German mining district, but would pass through a difficult country with a sparse population. The French have recently secured a mining concession, and French engineers are surveying the route for a railway to connect Seoul with Songdo.

The Seoul-Fusan Railroad, which the Japanese are endeavoring to build, would be excellent for the development of Korea, but it is a question whether it would add enough to the facility of travel to repay the large expense entailed in its construction and operation. Steamers can easily make the voyage from Fusan to Chemulpo in forty-eight hours, while it is announced that the journey by rail will occupy thirty-six. However, a committee of forty has been formed to promote the building of this railway.

ALLEGED GOLD DISCOVERIES IN SAMOA.

There have been so many letters of inquiry sent to this office concerning the discovery of gold and other precious metals in these islands that I feel it my duty to report upon the subject. United States papers have published statements in regard to the gold-bearing sands of Samoa, and it appears that many people have paid for expenses of development, etc.

I have from time to time made investigations, and if there are minerals—either gold, silver, mica, nickel, zinc, tin, or any other—in these islands, I have been unable to find them or to find any person who has any knowledge of the fact. If there is any "Gold Mining Company of Apia" (as reported in United States papers), the records do not disclose the fact, and the officials have no information upon the subject. No steamers, schooners, or other vessels are engaged in transporting sands or ores to Sydney or to San Francisco or elsewhere; no such persons as those named as constituting the "Gold Mining Company" are known here, and, in my judgment, a tremendous swindle is being perpetrated, and the public ought to know the facts.

L. W. OSBORN,
Consul-General.

APIA, *March 23, 1901.*

QUININE AUCTION IN BATAVIA.

Consul Rairden, of Batavia, March 4, 1901, reports that the ninth public auction sale of quinine was held in that city on February 27, 1901, and the following were the prices realized:

Editio II and III, consisting of seven lots, 22.68 to 25 kilograms (46.4 to 51.15 pounds): Sold at 21 florins (\$8.44) for Editio II and 26 florins (\$10.45) for Editio III per kilogram (2.2046 pounds).

Editio II, twenty-three lots of from 22.68 to 25 kilograms: Sold at 20.50 and 20.95 florins (\$8.24 and \$8.42) per kilogram (2.2046 pounds).

Editio II, consisting of one hundred and twenty lots, each weighing 22.68 kilograms (46.4 pounds): First hundred lots sold at 20 and 21 florins (\$8.04 and \$8.44), and twenty lots at 20.90 florins (\$8.40) per kilogram.

At this sale, 3,471.6 kilograms (7,102.89 pounds) of quinine, the full amount put up, was disposed of at satisfactory prices. The average price realized for Editio II—20.59 florins (\$8.28)—is equal to the unit price of 0.085 florin (3.4 cents) for the bark in Amsterdam.

The next two auction sales of quinine are advertised to take place April 3 and May 15, 1901, respectively.

A daily paper of February 27, 1901, reported that a St. Louis firm had contracted with the Bandoeng manufactory for a large supply of quinine at 0.08 florin (3.2 cents) per unit.

OPENING FOR ELECTRIC PLANTS IN INDIA.

The following clipping from the Calcutta Englishman of March 9, 1901, shows a possible opportunity for our manufacturers of electrical machinery to secure the contract for the proposed electric plant in Lahore, the capital of the Punjab.

Besides Lahore, which has a population of about 200,000, the following large cities of India have no electric plants: Madras (260,000), Delhi (115,000), Lucknow (150,000), Allahabad (100,000), Agra (200,000), Cawnpore (120,000), and Benares (225,000). Madras, it is true, has one for tramways, but not for lighting.

Electric lighting, though only introduced into Calcutta last year, is coming into general use. A contract has also been let for changing the tramways from horse to electric power.

Bombay, with a population of 750,000, has no electric-light plant, and the tramways are operated by horsepower.

It would seem that these cities were worthy of the attention of our manufacturers.

Mr. Arthur Gray, barrister at law, and Mr. F. C. Remington, Bombay Tramway Company, are negotiating with the Lahore municipal committee for a concession of the monopoly of the supply of electric light and power within the municipal limits, for thirty years, on the general lines of the Calcutta concession. Their proposals also include an electric-tramway line between the city and the railway station, with a possible extension to Mian Mir. The municipal committee has agreed to enter into negotiations, provided that the local government concurs and that satisfactory guaranties and an agreement on the general lines of the Calcutta license be entered into.

R. F. PATTERSON,
Consul-General.

CALCUTTA, *March 14, 1901.*

UNITED STATES TRADE IN SYRIA.

Owing to the financial crisis which Beirut is at present experiencing,* there has been a considerable decrease in the business of commission houses, and they are the agencies which in this country conduct nearly all the trade with foreign lands. The most extensive importers inform me that their dealings with local merchants have been reduced materially. The gathering of the silk and grain harvests in May and June is likely to afford some relief.

Although there has been a lull in actual business transactions, nothing has been able to check the voluminous correspondence which for the last year or two has been carried on between Syrian mercantile houses and American exporters. The Trade Index, Peck's Buyers' Index, and American Exporter have proved a great help to this consulate in promoting trade, and it is suggested that more copies of these valuable publications might be advantageously distributed in Beirut and other Syrian towns (Damascus, Tripoli, Haifa, Sidon, and Latakia) where attempts are being made to open a way for American products and manufactures.

A recent resurvey of the local field has proved very gratifying, not so much on account of the increased volume of business done with the United States as on account of the general interest manifested by commission firms and merchants here in regard to American products. It should be borne in mind that, except sewing machines, practically no American goods reached this market until within the last two or three years, and the trade is therefore yet in its infancy.

Weber & Co. are awaiting a shipment of cotton goods from New York. They seem confident that these can successfully compete in

* See ADVANCE SHEETS No. 984 (March 20, 1901); CONSULAR REPORTS No. 248 (May, 1901).

various lines with the so-called Manchester goods, which have monopolized this market for many years. Cotton fabrics constitute nearly one-third of the total imports into the Levant. The same house has imported from the United States during the last few months some \$700 worth of shoe leather, and also some rope. The leather is thought by local merchants to be the best article ever introduced here. Weber & Co. have faith in our flour, and they have also received samples of American watches. The latter are especially intended for Damascus, Aleppo, Bagdad, and other interior points.

Mr. R. C. Erny, another prominent commission agent, is now in correspondence with American exporters of cotton goods, flour, shoes, clocks, paper, etc. He has already brought in some \$4,000 worth of American carriage and shoe leather, and has the same favorable report to give of it as Weber & Co. Mr. Erny recently imported some American bicycles, which were sold in Damascus. There is, however, a very limited demand for bicycles in Syria.

The house of Fr. Wehner, from which much was expected, has failed to accomplish anything of importance in the way of importations from the United States. With the exception of some carriage springs (a shipment amounting to about \$300), nothing definite has been consummated. Their relations with Europe are such that the managers secure terms of payment practically to suit themselves. They courteously reply to all letters and inquiries addressed to them, however, and they have certainly given our exporters much valuable information.

Aug. Duplan & Co., as well as the house of Khacho & Co., are looking into the question of American coal. In view of the fact that coal-dust briquettes are now being successfully manufactured in the United States, the American article should be introduced here in the near future. Duplan & Co. have recently bought some \$12,000 worth of American wire nails. They are endeavoring to establish a useful agency for the Barber Line (direct steamers from New York) at Beirut.

Pharaon, Issa, Schoucair & Co. have lately become interested in American paints, hardware, iron and steel, coal, cotton goods, etc. They are the largest importers of coal in this country.

B. Audi & Co. have imported over 200 Columbia phonographs, and recently opened a parlor for the exhibition of American phonographs and such electric novelties and appliances as the Ottoman Government will admit. Some four weeks ago, they ordered from New York an electric phonograph, which is expected to add new life to the sale of these instruments. Audi & Co. hope soon to light their phonograph parlor by electricity. The best customers for phonographs are the Moslems of Beirut and Damascus, who buy

them for their harems. B. Audi & Co. are daily expecting a \$350 windmill from Illinois, which will be erected in the Bekaa plain (Coele-Syria). They are confident of a future trade in windmills, and believe that these territories will before long require a great quantity and variety of irrigation machinery. They informed me the other day that they had a customer for a 17-horsepower windmill for flour-grinding purposes (estimated value, \$2,000), which also was to be erected in the interior.

Philippe Turkel & Co. seem to be unusually fortunate in securing samples from the United States on easy terms of payment. They handle American beer and have sold 519 cases of 48 bottles each, up to date. One hundred and fifty cases have just been received direct from Milwaukee. American wire nails have been sold by Turkel & Co. during the last year as follows: For Beirut, \$529; Damascus, \$1,173; Cyprus, \$665; Tripoli, \$810. They have also sold wire nails for Yafa and Mersine. Turkel & Co. are especially interested in hardware, and have made arrangements with a New York house to handle this branch. They assure me that a good opening exists here for American iron in bars and for steel beams, but they have not the capital to enter into this business. It will be taken up by Pharaon, Issa, Schoucair & Co. and others. A Chicago firm is sending Turkel & Co. a sample windmill, to be erected at Yafa.

H. Sabbag & fils was the first Syrian house to bring in from America well-drilling machines and windmills. Although the managers have several specimens on hand, they are not pushing the business at present, as they are waiting for the return of a representative who was sent to the United States for the special purpose of studying this and other matters.

Luttiche & Co. (Damascus) are prepared to represent American export houses. They are expecting a sample shipment of our agricultural implements and garden tools.

Najib Letayf is bringing from the United States canned meat, fish, and fruit; also corn flour, oatmeal, etc. Other local importers of American groceries and provisions are Fadoul Ribeiz, George Komnos, and Henry Naggia.

N. & G. Araman are in correspondence with American exporters of mechanics' tools and hardware. There is a promising field in Syria for such articles, as well as for iron and steel in other forms.

Another encouraging sign is the prospective appearance on the scene of American traveling salesmen, something unknown in the commercial annals of Syria. A representative of the American Steel and Wire Company has already been here, and I am credibly informed that two other commercial travelers from the United States are bound for this place. As missionaries for trade expansion, catalogues and price lists are good, samples are better, but

"drummers" are by far the best. German success in distant markets is largely due to the German traveling salesman. Commercial travelers representing various branches of American industry should visit this city once or twice a year, carrying with them full lines of samples. They will be able to get along very well in Beirut, even if they know no other language than English.

G. BIE RAVNDAL,

BEIRUT, *March 23, 1901.*

Consul.

Under date of April 15, the consul adds:

It affords me pleasure to say that one of the two commercial travelers referred to in my report of March 23 has been here and is much pleased with his visit, although the total amount of the orders secured by him in Beirut and Damascus did not exceed 20,000 francs (\$3,860). Satisfactory arrangements were made with Mr. Erny, also mentioned in that report, for future business. I learn that the orders taken were chiefly for leather, hardware, mechanics' tools, and lamps.

In my list of commission agents in Beirut interested in American products, I accidentally omitted the name of R. Somerville, an old English resident, who has imported during the last couple of years American oil stoves, meat grinders, and other articles of hardware.

Having learned from Damascus that the chief engineer of the Mecca Railway, Mr. Meissner, wants a few portable well-drilling machines, as it is necessary to open wells along the route, I have suggested to Messrs. Sabbag & fils, of Beirut, who have on hand a drilling machine for shallow wells, bought in Indiana, that they at once enter into correspondence with "La Haute Commission du Chemin de Fer du Hejjas," Damascus, with a view of furnishing American machines for the drilling operations under consideration. I beg to reiterate my recommendation of a year ago (see CONSULAR REPORTS for June, 1900*), that an expert be sent here from the United States to canvass the field in the interest of American irrigation machinery, for which I believe there is a promising market in Syria, Palestine, and adjoining territories.

After about nine months of negotiations, in which this consulate has taken an active part, the municipality of Beirut placed, on April 1, an order with a Buffalo manufacturer for a \$3,300 steam street roller. I have no doubt the machine will give ample satisfaction and will prove a powerful wedge in opening up this market for American products. As far as known, it will be the first machine of its kind in Turkey in Asia.

*Also ADVANCE SHEETS No. 702 (April 12, 1900).

SYRIAN SILK FOR THE UNITED STATES.

The advisability of United States importation of Syrian raw silk direct instead of via Lyons has been urged in former reports.* Silk is to Syria what wheat is to our Northwestern States, and what cotton is to the South. If we succeed in inaugurating direct dealings in silk, the two countries will be brought into close relations, and American products will find a hearty welcome in Syria. Direct and regular steamship facilities might be one of the consequences of the success of this movement. It is a matter of high commercial importance, exclusive of the immediate benefits which presumably would accrue to the American silk-manufacturing industry, which is developing at such a rapid rate, as well as to the Syrian silk grower.

The objections of the American manufacturer to direct silk transactions with Syria may be summed up as follows:

The Syrian reeling does not conform at present to the American looms, the Syrian wheels being 80 centimeters ($31\frac{1}{2}$ inches) in circumference, while 64 centimeters (25.2 inches) would more nearly satisfy American needs. It is furthermore argued that the Syrian silk is not always clean, nor the threads perfectly even, and yellow silk does not answer as well for delicate shading as white. Besides, can the Syrian exporter be depended upon to live up to contracts?

From correspondence with silk houses at home, I feel satisfied that these obstacles are not insurmountable, and I trust this will soon be conclusively proven. A silk-factory proprietor in the Lebanon has finally been induced to adopt 64-centimeter wheels, and a sample bale of 100 kilograms (220.46 pounds) is due to proceed to New York about April 1, consigned to a prominent commission agent in that city by H. Sabbag & fils, of Beirut.

The Syrian silk thread is exceptionally strong, this being due to the excellent quality of the Syrian mulberry leaf on which the worm feeds. It is of the same color as the Italian silk, of which increasing quantities are being sold in the United States without Lyones inspection. It is handled by persons who for years have been dealing on a large scale with the United States in wool, licorice root, bitumen, etc., and have never failed to make good their agreements. The scheme should be given a fair trial. If success attends this experiment, the French wheels will probably disappear from Syrian silk factories.

The average value of the annual raw-silk exports from Syria

* See ADVANCE SHEETS No. 331 (January 23, 1899); CONSULAR REPORTS No. 233 (April, 1899).

may be put at \$5,000,000. The United States bought raw silk in 1900 for \$45,329,760, as against \$32,479,620 in 1899 and some \$5,000,000 per annum in the seventies. The total silk production of the world for 1900 being figured at 38,328,828 pounds, it would appear that the United States silk mills at the beginning of the twentieth century consume more than one-fifth of the entire output of raw material.

G. BIE RAVNDAL,

BEIRUT, *March 25, 1901.*

Consul.

IMPROVEMENTS ON THE NILE.*

Of the many monuments of this country's past that line the banks of the Nile, none will be more enduring than the Assouan Dam. This great work will be a memorial of the British sojourn in Egypt, and in boldness of design and thoroughness of execution will rank with anything that has ever been constructed in this land of Titanic achievements. The following sketch will give a fair idea of the progress and present state of the work:

All the low-level sluices have been practically completed. These will let the water through even when the Nile is low, and will be shut or opened, according as water is required. There are altogether 180 sluices and 150 low-level sluices. The lowest level water ever reaches at Assouan is 85 meters (278.89 feet) above the Mediterranean. By means of the dam, the water will be held up to 106 meters (347.6 feet) above the same level. The very lowest sluices are 65 in number, and they have been made recently. An idea of the immensity of the labor involved in their construction may be obtained from the fact that the foundation of the deep sluices goes 75 feet below the ordinary rock surface. Each sluice is fitted with steel gates, adjustable at will, so as to enable the water to go in and out. The foundation was the most difficult portion of the whole work; seven-eighths of it is now complete. One gap has been left to relieve the western channel, but all the foundations have been built in this gap. The most important work now in hand is the construction of the dam across the western channel, the last of the five deep channels of the river which cross the line of the dam and carry the supply of the Nile in winter and summer. Temporary dams for the work have already been constructed, and the excavations for the foundations are in progress. A temporary dam of earth has recently

* This report was made in compliance with a request by a New York newspaper, the editor of which has received advance proof.

been made on the south of the west channel. Another temporary dam on the north will soon be made, and then the pumps will be set to work to get the intervening water out. All the foundation masonry will be in and should be above water before the beginning of the Nile flood this year. When this has been accomplished, the difficult part of constructing the great dam will be over. It is now expected that the foundations of the west channel will be completed by the middle of next May.

Besides the vast labor immediately entailed by the dam, another great work directly connected therewith is being undertaken at the first cataract. As the dam will close the Nile to navigation, a canal of about 2,000 meters (6,540 feet) in length is being constructed. There will be four locks, each $9\frac{1}{2}$ meters (10.3 yards) broad and 80 meters (87.2 yards) in length, the first gate to be about 20 meters (21.8 yards) behind the center of the dam and the others north of it. The recess for the first lock gate has just been started, and the work of construction is now actively in progress. The gates will be of steel. When shut, they will stand across the opening of the canal, and when open they will slide into a recess prepared for their reception in the western wall. The foundations for the second and third locks are similarly in progress. The east wall of the first lock and the west wall of the second have already been built to the height of something more than 8 meters (8.7 yards). The foundation of the first lock floor is at 90 meters (98.1 yards) level, the others being respectively at 89, 86, and 83 meters (97, 93.7, and 90.4 yards) level. The canal will permit sailing vessels to pass all the year round; heretofore, they could only get through the cataract during high Nile. The mail steamers and any stern-wheeler now on the Nile will also be enabled to pass. The cost of this canal will be approximately £250,000,* or \$1,250,000, and would require £20,000 to £25,000, or from \$100,000 to \$125,000, in lock dues per annum, if it is ever to be a paying investment. But there is very little prospect of any immediate increase in trade; in fact, the reverse is probably the case. Formerly, there was a fair amount of carrying trade from the north, bringing supplies to the armies in the Sudan, and seed and grain has also been brought from the countries now depopulated and ruined by the Mahdi's and Khalifa's followers. This commerce is now gone, and the only carrying trade of any importance in the future will be from the south to the north, as the southern districts become more cultivated. The area, in any event, must necessarily be limited. Although a great volume of trade passes Shellal now, the construction of a railway from Assouan to No. VI station is

* The Egyptian pound, valued at \$1.913, is used throughout this report.

only a matter of time, and the trade from the north of the dam will consequently be limited to the district between Assouan and Wady-Halfa, which will not be tapped by the railway. The construction of this canal is, in fact, due to what may be styled "moral considerations." The Egyptian Government does not wish to bar the navigation of the oldest water way in the world and to cut off the villages between Shellal and the second cataract from all communication with the outer world; for when the canal is finished, the line to Shellal will no longer be used. It is proposed, when the dam is finished, to transship goods by the canal to Halfa, at Assouan. At the present time, about 150 native boats start from Shellal to Wady-Halfa every week.

The two chief works that will be undertaken during the next five months are to get the west-channel foundation in and to complete to their finished levels those parts of the dam whose foundations are already laid. In 1902, the work will be practically confined to finishing up. The great enterprise has gone too far for even a high Nile to hinder the completion of the dam.

No precise details can be given as to the cost of the work. The original estimate for the construction of the two reservoirs at Assouan and Assiout was £2,000,000 (\$9,886,000). The excess over this estimate will be great, although it can not be accurately gauged at present, owing to the greatly increased depths which had to be excavated before sufficiently sound granite on which to found the dam was reached. The whole work will be finished at least a year before the time specified in the contract, which was five years. This will save one low Nile, and this early completion of the dam will therefore be of great utility and benefit to Egypt. Such is the present status and condition of the work which will mark an epoch in Egyptian history.

A more curious jumble of the ancient and modern would be difficult to find than in this enterprise. The best mechanical appliances of the twentieth century are used amid the very quarries which furnished the materials for the colossal structures of the Pharaonic age. The rocks that are being quarried to-day bear the grooves and notches made by laborers who died thirty centuries ago.

As to the benefits contemplated in the construction of the dam, I quote from Lord Cromer's report for 1897, as follows:

There can be no doubt that the most crying want of the country at present is an increase in the water supply. For a long time past, I have been constantly hearing complaints of want of water. All competent engineering authorities are agreed that nearly all that can be done with the present supply of Nile water has been already accomplished; that the only way to increase the supply is to store the water; that the present supply is hardly sufficient for the land now under cultivation; and that, unless timely measures be taken to increase it, a check will be given

to the growing wealth and prosperity of the country by reason of the impossibility of supplying water to the fresh land which is being brought constantly under cultivation. The desirability of constructing the reservoir is, in fact, so generally recognized that I need say no more on this branch of the subject.

I proceed to explain—

- (1) The nature of the works which it is proposed to construct and their cost.
- (2) The method by which the necessary funds will be obtained.
- (3) The benefits which it is believed will accrue from the construction of the reservoir.

The works which it is proposed to construct and their probable cost are as follows:

Description.	Cost.	
Assouan dam and lock.....	£1,400,000	\$6,920,200
Assouit dam and lock.....	425,000	2,100,775
Ibrahimiéh Canal, regulator, and lock.....	85,000	420,155
Land and subsidiary works.....	49,000	242,207
Customs duty on material and plant.....	41,000	202,663
Total.....	2,000,000	9,886,000

Before proceeding any farther, it will be well that I should explain the method which has been adopted to insure the construction of these works.

A contract between the Egyptian Government and Messrs. Aird & Co. was signed on February 20, in virtue of which the latter have engaged to complete the works in five years from the 1st of July, 1898. On the other hand, the Egyptian Government has undertaken to pay for the works by semestrial payments of £78,613 (\$388,584) over a period of thirty years, beginning from the 1st of July, 1903.

I should mention incidentally that, under the scheme finally adopted, the more important of the temples on the Island of Philæ will be free from all chance of submersion. They will be above the highest level of the water in the reservoir. Further, the Egyptian Government has fulfilled the pledge which it gave to those who are specially interested in archæology, inasmuch as Captain Lyons' plans and results of his investigations at Philæ have been published. Moreover, a detailed survey of those portions of Nubia which will be affected by the reservoir is in course of preparation.

In addition to the two dams at Assouan and Assiout, it will be necessary to construct certain subsidiary works in the nature of canals and drains, in order to enable the country to benefit fully from the increased supply of water which will be furnished by the reservoir. The cost of these works is estimated at about £1,800,000 (\$8,897,400). It is proposed that the ordinary credits of the public works department on account of canals and drains should be applied to these works during the five years which will be required to construct the reservoir.

I annex to this dispatch a memorandum prepared by Sir William Garstin which shows in detail the benefits which are likely to accrue from the construction of the reservoir.

Sir William Garstin's calculations are based on the following assumptions:

First. Experience has shown that a low Nile occurs about once every five years. Sir W. Garstin has assumed, as a basis for his calculation, that a low Nile will occur every year.

Second. Sir William Garstin assumes that the volume of water capable of being stored will be 1,065,000,000 cubic meters (37,612,179,000 cubic feet). This calculation is certainly below the mark, for the reason that, in calculating the storage

capacity of the Nubian Valley, the section of the river channel has alone been taken into account. The contents of the numerous valleys which run transversely to the Nile, and some of which are 2 or 3 miles in length, have been neglected.

Third. No account has been taken of the indirect gain which will certainly accrue to the State from the increase of customs revenue and railway receipts.

Even on these highly unfavorable assumptions, Sir William Garstin estimates that, if the reservoirs be constructed, the annual wealth of the country will be increased by about £2,600,000 (\$12,851,800); that the direct gain to the Government will be about £380,000 (\$1,878,340) a year; and that the value of the Government lands which will be reclaimed will be increased by more than £1,000,000 (\$4,943,000).

I fully agree with Sir William Garstin in thinking that, in making an estimate of this sort, it is wise to err on the right side. At the same time, I feel confident that the benefits which will accrue from the construction of the reservoir will be considerably in excess of the figures stated above.

MEMORANDUM BY SIR W. E. GARSTIN.

The modified project for the Nile reservoir has necessitated revision of the estimate of the profits expected to result from its construction. In the report published in 1894, Perennial Irrigation and Flood Protection for Egypt, the scheme proposed was that of a dam at Assouan, with its crest fixed at 114 meters (373.9 feet) above sea level and a power of storing 2,550,000,000 cubic meters (90,057,330,000 cubic feet) of water. The above quantity was estimated as sufficient for the needs of the entire country lying between Assiout and the Mediterranean.

This project involved the submersion of the Philæ temples, and a modified proposal was eventually submitted to and approved by the Egyptian Government. The crest of the dam was lowered by 8 meters (26.2 feet), in order that the highest water level in the reservoir should leave the main temples on the island untouched.

Such an alteration necessarily reduced considerably the volume of water which could be stored. The amount as now allowed for is 1,065,000,000 cubic meters (37,612,179,000 cubic feet).

We have studied as to how this water could be most beneficially distributed, and, after careful consideration, have arrived at the conclusion that it would be most advantageous to the country as a whole were all portions of it to be enabled to participate in a greater or less degree in the benefits resulting from an increased supply of water during the summer months.

The following is the distribution decided upon:

Description.	Quantity.	
	<i>Cubic meters.</i>	<i>Cubic feet.</i>
Upper Egypt (south of Assiout).....	170,000,000	6,003,822,000
Middle Egypt (Assiout to Cairo).....	510,000,000	18,011,416,000
Lower Egypt (north of Cairo).....	300,000,000	10,594,980,000
Ghizeh Province.....	85,000,000	3,001,911,000
Total.....	1,065,000,000	37,612,179,000

The province of the Fayoum is included in the Middle Egypt area. The Ghizeh Province is treated separately, being under special conditions and forming, as it does, the connecting link between the irrigation systems of Upper and Lower Egypt.

Before giving the figures of the anticipated profits, it should be stated that

throughout our calculations we have presupposed the existence of the most unfavorable conditions of season and supply which can be imagined. It may be that we have gone too far in the direction of underestimating the benefits attainable, but we have thought it preferable to present very low estimates, which can be accepted as representing certain returns, rather than to take a very sanguine view, which might possibly lead to disappointment hereafter.

The following figures are applicable to a year of exceptionally low summer supply, such as that of 1889 or 1892.

Experience would seem to show that the average of low Niles in Egypt is in the proportion of two in every ten years, or one year in every five. It is therefore safe to assume that once in every five years the profits resulting from the construction of the reservoir will not exceed our estimates, while, on the other hand, in the four years which complete this period, a decided increase in the totals may be confidently looked for.

It might be asserted that, as regards the reclamation of the new land, it would, given the risk of a bad year, be dangerous to allow any large extension of the cultivated area during the years of good supply. Such extension is, however, unavoidable, as, if the extra water is available, no efforts on the part of the Government could prevent its taking place. Moreover, the danger would not be as great as might be supposed, inasmuch as the greater part of the cotton crop could, even under the conditions of a bad year, be saved. The cotton plant has the power of retaining its vitality with a very scanty and irregular supply of water, and by means of a strict system of rotations of canals, it would be possible to insure that the crop, even in the extended area, should attain maturity.

In such a year, the cultivation of rice upon any large scale could be prevented by warning the people in sufficient time, and the early sowing of the maize crop could be retarded. The risk which would then be run, allowing for an extended area and an exceptionally bad year, would be comparatively small, and the most valuable crop to the producer in Lower Egypt—viz, the cotton—could be practically insured from failure.

Lastly, it should be mentioned that the volume of water which could be actually stored by the dams would be greater than that indicated on the first page of this note, for the following reason:

In calculating the storage capacity of the Nubian Valley, the section of the river channel alone has been taken into account. The contents of the numerous large valleys, or "khors," which run transversely to the Nile have been neglected. Many of them are 2 or 3 miles in length, and they will undoubtedly add considerably to the cubic contents of the reservoir. The irrigation service will consequently always have a certain surplus of water in hand, which in a bad year could be devoted to securing the crops on the extended area due to the years of good supply.

The following are the figures which, according to our calculations, represent the returns which may be expected from the completion of the reservoir project:

I will commence with the most southerly tracts, and follow the distribution of water as already indicated.

I.—Upper Egypt.

Allowance of water equals 170,000,000 cubic meters (6,003,822,000 cubic feet).

This amount of water will irrigate 70,000 acres in summer by means of pumping machinery erected on the Nile banks.

Our rule in all irrigation projects is that of the total area of land commanded by a canal or pumping station, only one-third can be advantageously cultivated in any one season. This limit permits of the rotation of crops, and prevents the land becoming exhausted by overcropping.

Applying this rule in the present instance, it would mean that three times 70,000 acres, or 210,000 acres, would receive perennial irrigation.

Experience has shown that when "sefi," or summer crops, are substituted for those grown in the flood basins, the value of the increased yield of the land averages from £2 to £2½ (\$9.89 to \$12.36) per acre. Accepting the lower of these two figures for the purposes of this estimate, although in this instance the cultivation will be entirely that of sugar cane, we can fairly apply this enhanced rate to the whole of the substituted area as above detailed.

Again, we know from experience that the difference in rental value between land under perennial irrigation and that under basin cultivation is £1 (\$4.94) per acre higher in the first case than in the second. This being so, the former category could undoubtedly stand without difficulty a higher rate of land tax than the latter. As the rate of fair taxation is generally admitted to be just under 30 per cent of the rental value, it follows that land to which summer irrigation is given should be taxed 30 piasters—higher per acre than that in the adjoining basins, in which the flood crops are alone grown.

The estimate for Upper Egypt thus becomes—

Description.	Amount.	
Increased annual wealth to the country: 210,000 acres, at £2 per acre.....	£420,000	\$2,076,000
Direct annual benefit to the State derived from above: 210,000 acres, with increased tax of 30 piasters.....	13,000	64,250

II.—Middle Egypt.

Allowance of water equals 510,000,000 cubic meters (18,011,466,000 cubic feet). Our calculation shows that the increased supply of water will enable an area of 458,000 acres, now irrigated as basins, to be converted into a system of perennial irrigation. Further, an area of 52,000 acres of land in the Fayoum, at present uncultivated, can be reclaimed and rendered capable of bearing summer crops.

For each land it is safe to allow of an annual yield of produce amounting in value to £5 (\$24.72) per acre. The average yield of "sefi" land all over Egypt works out rather more than £7 (\$34.60) per acre, so the estimated allowance for the new lands can not be considered as an unreasonably high one.

The figures are as follows:

Description.	Amount.	
Increased annual wealth to the country:		
458,000 acres of basin converted into "sefi," at £5.....	£916,000	\$4,527,788
52,000 acres of reclaimed land, yielding £5.....	260,000	1,285,180
Direct annual benefit to the State derived from above.....	1,176,000	5,812,968

The basin land converted to "sefi" will bear the additional tax of 30 piasters (\$1.48) an acre, as in the case of Upper Egypt. The reclaimed area can without difficulty pay the very moderate tax of 50 piasters (\$2.47) an acre. In addition to these two sources of revenue, there will be that due to the increased rental value of the land belonging to the Government administrations of the Daira Sanieh and State domains. Allowing that the greater portion of this area is at present sufficiently well irrigated, there remains, however, a considerable amount of land (chiefly in the Fayoum) which will benefit largely by the increased supply of water.

The area may be assumed to be not less than 50,000 acres, and, allowing as before that the annual rental value will be raised by £1 or 100 piasters (\$4.94) per acre, it follows that after deducting the extra tax of 30 piasters (\$1.48) an acre these administrations, and consequently the Government, will benefit to the extent of 70 piasters (\$3.46) an acre.

The figures thus become—

Description.	Amount.	
Extra tax of 30 piasters (\$1.48) on 458,000 acres.....	£137,400	\$679,168
Tax of 50 piasters (\$2.47) per acre on reclaimed area of 52,000 acres.....	26,000	128,518
Increased annual rental of 70 piasters on 500,000 acres.....	35,000	173,095
Total.....	198,400	980,781

III.—Lower Egypt.

Allowance of water equals 300,000,000 cubic meters (10,594,980,000 cubic feet).

The above allowance will serve to insure the existing cotton crop against drought and at the same time to reclaim an additional area of uncultivated land amounting to 120,000 acres in extent.

A further source of wealth to Lower Egypt will be in the increased yield of summer crops of all kinds in the area at present cultivated, due to an increased and assured water supply. This item, although it represents one of the most important services to be rendered by the reservoir, is difficult to reduce to figures with any degree of accuracy. I have therefore omitted it altogether in the following calculations:

Increased annual wealth to the country: One hundred and twenty thousand acres of reclaimed land, yielding £5 (\$24.71) per acre, £600,000 (\$2,965,800).

Direct annual benefit to the State derived from above: The reclaimed land will naturally be taxed.

The lowest rate which could well be imposed would be 50 piasters (\$2.47) an acre, and in time this land could stand double this amount. In addition to the taxed area, there is in Lower, as in Middle, Egypt a quantity of land belonging to the State administrations the rental value of which will be increased by 100 piasters (\$4.94) per acre consequent upon the additional supply of water. This area is estimated at some 36,000 acres, and, deducting the extra tax of 30 piasters (\$1.48) per acre due to the increased rental value, there remains, as was shown in the case of Middle Egypt, an increased net rental of 70 piasters (\$3.46) per acre.

The figures then are:

Description.	Amount.	
120,000 acres reclaimed land, taxed at 50 piasters per acre.....	£60,000	\$296,580
36,000 acres of State lands, net rental increased by 70 piasters.....	25,200	124,564
Total	85,200	421,144

IV.—Ghizeh Province.

Allowance of water equals 85,000,000 cubic meters (3,001,911,000 cubic feet).

This quantity will permit of a total area of 106,000 acres of basin being converted into "sefi," or land perennially irrigated. Applying the figures made use

of for the other areas, viz, increased value of yield, £2 (\$9.88) per acre, and increased tax calculated at 30 per cent of the additional rental value—i. e., 30 piasters (\$1.48) per acre—the figures for Ghizeh become:

Description.	Amount.	
Increased annual wealth for the country: 109,000 acres at £2 (\$9.87) per acre.	£212,000	\$1,047,916
Direct annual benefit to the State derived from above: 109,000 acres, with increased tax of 30 piasters (\$1.48).....	31,800	157,187

V.—Insurance of the cotton crop.

One of the most important results which will accrue from the reservoir, although difficult to set down in figures, will be the insurance of the existing cotton crop against failure, even in years of deficient summer supply. As this item can not well be omitted in any note like the present one, an attempt must be made to arrive at some idea of the value to the country produced by such an insurance.

The mean annual value of the cotton crop may be estimated at the sum of £10,000,000 (\$49,430,000), even at the present prices. In a year of bad supply like 1889 or 1892, it is safe to assume that 10 per cent of the present crop would be lost, owing to scarcity of water. The total for 1897 will be considerably over 6,000,000 cantars (748,221,600 pounds) of cotton, and it seems unlikely that future returns will ever fall far short of this figure. A failure of the Nile in summer would therefore, under the existing irrigation system, mean a loss of 600,000 cantars (74,822,160 pounds) of cotton. If we take the mean value of the cantar at 175 piasters (\$8.65), which is low, it would mean that in such a year the country would be poorer by the sum of £1,020,000 (\$5,041,860), or that it is represented by a sum of £200,000 (\$988,600) per annum.

VI.—Further direct gain to the State resulting from the sale of the reclaimed lands.

The area has already been given, viz:

	Acres.
In the Fayoum.....	52,000
In Lower Egypt.....	120,000
Total.....	172,000

Of this, about 100,000 acres may be considered as belonging to private individuals and to the Government estates. The proportion is somewhat as follows:

	Acres.
Waste lands belonging to private individuals.....	70,000
Waste lands belonging to Government estates.....	30,000
Total.....	100,000

The Government administrations would, of course, be able to sell such lands, supposing that water were available for their cultivation. The total area of waste land at the disposal of the State for sale would therefore be:

	Acres.
172,000—100,000 acres.....	72,000
Belonging to Government administrations.....	30,000
Total.....	102,000

The rate of £10 (\$49.43) per acre for land with good drainage and an assured water supply in summer is not all too high. There should then eventually result from the sale of the above a total sum of £1,020,000 (\$5,041,860). It is true that

land reclamation is a very slow process, and that these sales will probably extend over a considerable period of years. There is, however, no doubt that in time the whole area will be sold.

VII.—Increase in traffic.

Lastly, there remains to be mentioned the result of the reservoirs, which will almost to a certainty bring in the largest and the quickest increase of revenue to the Egyptian Government—I mean the increase in the customs returns and the increased traffic upon the State railways. These figures will undoubtedly be very large, as the experience of the last ten or twelve years has shown plainly how steadily they keep pace with the additional yield of the crops and the increasing wealth of the inhabitants. It would, however, be impossible to prepare an estimate of such figures that would possess any pretensions to accuracy, and it must suffice to mention these items as representing one of the most, if not the most important benefits to be conferred upon Egypt by the construction of the dam and reservoir at Assouan.

The total figures, as given in the foregoing pages, work out as follows:

Description.	Amount.	
Annual increase in the wealth of the country:		
Upper Egypt.....	£420,000	\$2,076,060
Middle Egypt.....	1,176,000	5,812,968
Lower Egypt.....	600,000	2,965,800
Ghizeh Province.....	212,000	1,047,926
Insurance of the cotton crop.....	200,000	988,600
Total.....	2,608,000	12,891,354
Direct annual benefit to the State derived from the above:		
Upper Egypt.....	63,000	311,409
Middle Egypt.....	198,400	980,691
Lower Egypt.....	85,200	421,144
Ghizeh Province.....	31,800	157,287
Total.....	378,400	1,860,431
An additional sum to be obtained from the sales of reclaimed land.....	1,020,000	5,048,860

Sir William Garstin's note shows that the following land will be converted from basin land into "sefi" as soon as the reservoir is completed:

District.	Quantity.	
	<i>Feddans.</i>	<i>Acres.</i>
Upper Egypt.....	210,000	216,300
Middle Egypt.....	458,000	471,740
Ghizeh.....	106,000	109,180
Total.....	774,000	797,220

The estimated effect of which, upon the production of long-staple cotton in Egypt, will be 25 per cent increase. It is not intended to raise the short-staple cotton.

CAIRO, February 4, 1901.

JOHN G. LONG,
Agent and Consul-General.

COTTON GROWING IN WEST AFRICA.

Messrs. Elder, Dempster & Co., an enterprising Liverpool firm of shipowners, are arranging to send six American cotton-growing experts to the west coast of Africa, to institute experiments in the growing of cotton in that region. In the early "sixties," cotton growing was started on the west coast of Africa, the incentive being the opportunity afforded by the disorganization of the cotton trade consequent on the civil war. The experiments can not be considered to have been a success. Liverpool received nearly all the cotton exported from West Africa. In 1864, 1,710 bales were received here. The largest number of bales received since then was in 1869, when 19,300 bales came to Liverpool. Since that date the figures have fluctuated, showing a tendency, however, to a steady decrease. In 1870, 13,000 bales of West African cotton were imported into Liverpool; in 1880, the number of bales was 574; in 1890, 3,333 bales arrived; in 1895, 207 bales; the next year not one bale was received; in 1897, just one solitary bale came, and since then a few hundred bales have annually been imported. The West African cotton that has come here has been of the short-staple variety, and not of a very good color. It is, however, a fairly good cotton, with a better staple than the East Indian. When "middling American" was quoted last year at $5\frac{1}{2}$ d. (11 cents), "West African" was quoted at $4\frac{3}{4}$ d. to 5d. ($9\frac{1}{4}$ to 10 cents).

The Germans are trying to establish cotton growing in their west coast colonies. Cotton growing has also been introduced in the French West African colonies; and only recently, an inquiry was received by Elder, Dempster & Co. as to freight charges for a cargo of cotton from Dahomey to Liverpool. The district in British West Africa in which it is proposed to make the special cotton-growing experiment is Lagos. Quite recently, a sample of cotton came to Liverpool from Lagos and was pronounced very good. It is proposed also to make experiments under British auspices in Sierra Leone and Liberia.

Liverpool cotton men do not attach much importance to this new enterprise, although some interest is being taken in it. The general opinion here is that our Southern States will always have a monopoly of producing the cotton mostly in favor, not only in the United States, but on the Continent and in England, for general purposes. Suggestions have been made that Egyptian cotton might in time be produced in such quantities as to be a formidable rival to American cotton; but there does not seem to be much foundation for this suggestion, the Egyptian cotton being best suited,

owing to its long and fine staple, for special purposes; and, what is more important, the production will always be comparatively very limited, even when the great irrigation system, now in course of construction, is in full operation. Experiments on the west coast of Africa may, however, develop into an actual (although comparatively small) competitive trade with the cotton-growing industry of the Southern States. It is only a bare possibility, however. An attempt will be made to acclimatize American cotton seed on the west coast; but the chances are that the cotton which will be produced from this seed will not be identical with, nor as good as, the home product. That has been found from other experiments made in different parts of the world with American cotton seed. Experts here doubt very much whether the west coast of Africa can ever produce as good cotton as the Southern States; and yet it is difficult for anybody to give a well-founded judgment, as heretofore cotton growing on the west coast has not been on a scientific basis.

It might occur to American cotton men that the extra distance from the west coast of Africa to Liverpool (Lagos is 4,387 miles from Liverpool), as compared with that from the American seaboard, would permanently prevent west coast cotton from competing with American cotton. It should be borne in mind, however, that the American cotton, or rather the English buyer, is handicapped by the fact that in most cases ships which bring over cotton from the United States to England have to make the return trip largely in ballast, so that one voyage across the Atlantic must practically pay for two. This is because the ships have little or no cargo to take westward. With the west coast, however, it would be different. The trade between Liverpool and the west coast of Africa is profitable both ways, the ships bringing all sorts of raw material from Africa to Liverpool and taking back full cargoes of manufactured articles. Its West African trade is one of the most prosperous that Liverpool has, and it is growing all the time. The development of cotton growing on the west coast would undoubtedly greatly increase the export trade of Liverpool to that region. It is easy to see, therefore, that the freight charges from Africa, while for a much longer distance, need not necessarily be greater than from the American coast—that is, the shipowners can afford to charge less freight rates for the reason that they make money both ways. If, therefore, this experiment on the west coast be successful, American cotton growers may be faced with a competition (even though limited) which heretofore has been thought absolutely out of the question.

Elder, Dempster & Co. are not oversanguine as to the result; they look upon their enterprise as purely experimental. It is safe to assume, however that the trials conducted under their auspices will

be thorough and conclusive. No shipping company in the world is so familiar with existing conditions on the West African coast as this firm, and the managers are experienced in the development of new and vast enterprises. For instance, they have won practically a monopoly of the trade with the Canary Islands; they have the contract with the British and Jamaican Governments for the development of the Jamaican fruit industry; and they do more business, not only as carriers, but commercially, with the west coast of Africa than any other firm in the world. Elder, Dempster & Co. realize that even though the soil and climate of the west coast be favorable to their cotton-growing experiment, they are confronted with a great obstacle in the indisposition of the native labor to hard physical toil, the actual necessities of a primitive form of existence on the coast being easily obtainable with little or no work.

JAMES BOYLE,

LIVERPOOL, *April 23, 1901.*

Consul.

TRADE OF DAHOMEY.

Consul-General Guenther transmits the following from Frankfurt, April 15, 1901:

A Paris letter to the Political Correspondence states that the economical condition of Dahomey is extremely satisfactory and that the expectations entertained when the colony was formed have been surpassed.

The foreign commerce amounted to 25,000,000 francs (\$4,825,000) in 1899 and increased to 28,000,000 francs (\$5,404,000) in 1900. The share of France was 6,882,000 francs (\$1,328,226) in 1899 and 8,388,000 francs (\$1,618,884) in 1900. In 1897, the total commerce amounted to only 14,021,815 francs (\$2,706,210) and in 1898 to 3,000,000 francs (\$579,000) more.

Almost the total increase is on account of imports, the main items of which in 1900 were:

Articles.	Amount.	
	<i>Francs.</i>	
Beverages	4,328,000	\$835,304
Tobacco	1,058,363	204,264
Textiles.....	3,209,789	636,859
Salt	361,208	69,715
Machinery and tools.....	308,000	59,444

Germany comes next to France in imports, with a value of 5,076,824 francs (\$979,827).

The following additional details are supplied by Consul Monaghan, of Chemnitz, April 16, 1901:

England's share of the imports did not amount to more than \$526,278. The customs receipts increased \$63,752 over those of 1900. There were 415 incoming steamships, with a total tonnage of 393,401 tons, and 416 outgoing steamships, with a tonnage of 393,426 tons.

TRADE OUTLOOK IN ARGENTINA.

The following extracts are from a report by Consul Mayer, of Buenos Ayres:

The publication of the official trade statistics for 1900 has attracted the attention of those interested in studying the indications of a country's progress offered by her general trade movement.

In the year 1899, the value of the exports, roughly stated, amounted to some \$185,000,000, while those of the year 1900 stand only for \$154,500,000, showing an apparent shrinkage for the year 1900 of \$30,000,000. But this feature is explainable when it is remembered that at the end of 1899 the prices of wools were so extraordinarily high that producers hurried their clip to market with all the expedition possible. In this way, about three-fourths of the wool clip was shipped in the last three months of the year, which is quite an unprecedented experience in the wool exports. In the year 1900, on the contrary, when there was so heavy a fall in the values, farmers and woolgrowers were in no hurry to send their wools to market, and not one-fourth of the season's clip was shipped. Looking at these two factors, it is easy to find the reason of the falling off in the quantity of wool and the estimated value thereof in the exports of 1900; and it must also be taken into account that there are at present some 200,000 tons of wool with an estimated value of, say, \$40,000,000 gold unexported. Another item of export which has suffered is live stock, the shipment of which virtually ceased at the end of April of 1900. Sugar also shows a diminished exportation, but all the other products indicate progress. Had it not been, in short, for the heavy fall in the wool values, and had the clip for 1900 been hurried forward as was the case with that of 1899, the returns for 1900 would have shown improvement over those of 1899.

The foot-and-mouth disease, the closing of the British ports, the immense fall in the values of wool, the bad result of the maize shipments, and the inundations in the province of Buenos Ayres, which meant a loss to farmers of something like 20,000,000 sheep, are causes sufficient to account for a year's bad trade. But even taking into consideration these items, the actual state of trade did

not compare so badly during the first nine months of the year. It was when the wools began to arrive and it was seen that the looked-for reaction of prices in Europe was not to take place that the gravity of the situation was realized.

ENGLISH VS. AMERICAN LOCOMOTIVES IN JAMAICA.

During 1899, the rolling stock of the Jamaica Railway was in very poor condition. An English railroad expert who was in the island inspecting the service recommended that five new engines be ordered from England, and that as the American engines in use "appeared to have been designed without much regard to the special features of the railway for which they were intended" he would supply the specifications for the new ones, in order to make them specially suited for the "peculiar grades and curves of the railway line."

Among the parties connected with the railroad, the opinion was freely expressed that the United States could not turn out as durable a locomotive as could be obtained in England. Thus the order for the five engines was sent to England.

Two of these engines arrived last month. I append a clipping from the Daily Telegraph of April 1, which gives the result of a trial trip:

FAILURE OF A NEW RAILWAY ENGINE.

"No. 27," one of the two English engines which have just been added to the rolling stock of the Jamaica Government Railway, failed to give satisfactory results in the second trial trip on Saturday.

The engine was dispatched from Kingston in the morning in charge of Mr. John Rose, one of the oldest and most experienced drivers on the railway. At Clarendon Park, two cars loaded with coal and five fruit cars, three of which were loaded, were attached to the engine and the test as to the capability of the engine to pull a freight train over Melrose Hill was commenced.

The train went through Porus all right; but as soon as it had taken the grade in the vicinity of Redberry, the engine began to slow down, and it was noticed that the iron horse could not maintain the proper amount of steam.

Half a mile away from the foot of the grade, the engine came to a standstill.

The weather was favorable for the test; but when additional pressure was put on, the wheels simply revolved without moving the train.

The engine and train were brought down on the level line. One of the cars with fruit was disconnected, and a second attempt was made to climb the hill. The engine again stuck at the half-mile mark.

Another loaded car was removed on the level, and a third trial was made, but with no better result.

It is understood that alterations will be made to the driving wheels, but some persons are of opinion that the railway authorities will be compelled, in the end, to use the engine only on the level portion of the line.

In an article of the 15th instant, it was stated that the engine not only failed to draw the train, but sustained injury in the attempt. The opinion is expressed by people of some experience that, judging by the result of the trial, notwithstanding the alterations to be made, the engines will fall short of what was originally expected.

The grade of the hill over which this locomotive was tested is stated at 1 in 30, and trains of six loaded American freight cars have been regularly drawn over it by the American locomotives.

Increased freight traffic, together with the regular passenger service, kept the United States locomotives constantly employed, and thus did not allow time for them to be properly overhauled and repaired; consequently, it sometimes occurred that in a run of 75 miles—from Port Antonio to Kingston—the engines would lose steam in going over the grades, and two or three stoppages of half an hour or more would result.

Recently, the number of passenger trains has been reduced, and some of the engines have received the long-needed repairs. Those that have been overhauled are again performing very satisfactory work.

The American locomotives which have been in use for the past five years are said to have cost a trifle over £2,000—about \$9,733.16—each, while the English ones cost a little over £4,000, or about \$19,466.32 each.

NICHOLAS R. SNYDER,
Commercial Agent.

PORT ANTONIO, *April 17, 1901.*

GERMAN CUSTOMS WAR WITH HAITI.

Vice-Consul-General Murphy transmits from Frankfort, April 18, 1901, translation of a clipping from the *Frankfurter Zeitung*, as follows:

Official notice has been given that the rates of duty for wares imported from Haiti are to be doubled, because that Republic has refused to extend to Germany, under the most-favored-nation clause of the treaty, the customs advantages which it has granted to other nations. This brings us face to face with a customs war with Haiti. Our exportation to Haiti is, however, so small that it can not be seriously injured by such a contest, it having amounted in 1897 to 1,400,000 marks (\$340,000), falling in 1898 to 678,000 marks (\$160,000) and in 1899 to 472,000 marks (\$115,000). Our importations from Haiti are somewhat larger; but they are also falling off, their value being, in 1897, 8,640,000 marks (\$2,000,000); in 1898, 6,570,000 marks (\$1,600,000); and in 1899, 6,450,000 marks (\$1,500,000). The articles imported were: Dyewoods (blue wood), 295,000 marks (\$70,000); hides, 57,000 marks (\$14,000); raw coffee, 1,729,000 marks (\$400,000); and cocoa beans, 2,179,000 marks (\$500,000).

The cocoa was of poor quality, but the amount supplied by Haiti formed about

10 per cent of Germany's entire importation of this article, and so it is possible that the customs war may injure some German cocoa factories.

The matter is more serious to users of blue wood. Especially in the Kingdom of Saxony (Dresden, Leipzig, Chemnitz, and Zittau), there are large establishments which use annually 20,000 double centners (2,000 tons) of blue wood, which in some cases comes entirely from Haiti. As 700 kilograms of blue wood are used to produce 100 kilograms of extract, the collection of additional duty at the rate of 20 per cent ad valorem would increase the price of each 100 kilograms of blue wood 2 marks (47.6 cents). The cost of 100 kilograms of extract would accordingly be increased 14 marks (nearly \$3.50), while the duty on imported extract is only 3 marks (72 cents) per 100 kilograms. An increase of duty on extracts would arouse the opposition of both the textile and dyeing industries; but if the duty on extracts is not raised when the duty on blue wood is increased, many establishments in Germany now using blue wood will be forced out of business.

RESOURCES OF BRITISH GUIANA.

Under date of April 19, 1901, Consul Moulton, of Demerara, sends copy of suggestions prepared by the secretary of state for the British colonies concerning concessions of territory in British Guiana, which may interest those who seek grants for various purposes in the colony. Special stipulations must be made with the local government for each grant. The memorandum is summarized as follows:*

Except for purposes of outlet, the coast land of the colony southward from the Moruka River will not be included in any concession. For convenience, British Guiana may be divided into the following districts (with approximate areas):

	Square miles.
Northern.....	8, 497
Central.....	19, 241
Southern:	
Upper part.....	20, 977
Lower part.....	30, 820
Coast	12, 761
Total.....	92, 296

The northern district is almost entirely forest covered, with an exceptionally fertile soil. It has an important gold center of wide extent, and possesses the advantage of ready access for ocean trade. The construction of a much-needed Kaituma-Arakaka railway would greatly facilitate approach to the existing gold fields between the Barima and the Barama.

The central district is chiefly wooded, but includes considerable grazing country. It has gold centers on the Puruni, Piamah, and Cuyuni rivers. The diamond industry on the Massaruni is now attracting attention.

The northern subdivision of the southern district has valuable timber lands, but also includes much open grazing land and an exceptionally promising gold

*The full text, with map, is filed for reference in the Bureau of Foreign Commerce.

center. It is believed that a railway through this district would afford a natural avenue for an important trade from the Rio Branco and the Upper Amazon to the coast towns of the colony.

As the object is to attract and settle under satisfactory social conditions a permanent industrial population, not only mineral rights, but full rights of occupation, including agriculture, pasture, and timber cutting, would be conceded within the leased area. Intending concessionnaires will be granted the sole right, for a limited period, to explore any special points, being required to deposit a moderate sum as security with the Government on the signing of the agreement. Within the period allowed for exploration, concessionnaires must declare their selection of areas, which would be the subject of a long lease—say for ninety-nine years. Rights not reasonably exercised within a year from the date of selection would lapse; also, if without reasonable cause work ceased to be effectively carried on for more than a year at a time.

Immediately after selection, concessionnaires would be required to pay to government a sum, to be fixed in the agreement, to be applied primarily to the improvement of communication; they would also be required to spend a further sum to the satisfaction of the Government, similarly fixed, on development within the selected areas. Besides paying royalties or export duties on minerals, timber, or other natural products, concessionnaires, in case of large concessions, would be required after five years to pay such land taxes as may be in force in the rest of the colony. In case of concessions of less than 5,000 acres, such taxes would be payable from the first. Mining and other regulations of the colony would apply within the selected area. All rights assigned to the concessionnaires would be subject to any existing, legally conceded rights, and especially subject to the full rights secured by law to the aboriginal Indians. Public rights of way, including rights of landing, would be reserved, as well as such land as the Government might require for public purposes. Under the existing customs ordinance, machinery and materials imported by the concessionnaires for use on railways or for the development of their property would be admitted duty free.

Original concessionnaires would have the right of transferring, subject to the approval of the secretary of state; if the concessionnaire were a company, it would be required to retain three-fifths of the shares.

The above conditions apply to dredging for gold and precious stones, or to railway construction. The proposed termini of a railway would be stated in the original concession. The usual Government control over the construction, working, and rates of tariff of the railway would be retained. The following railway projects are deserving of consideration:

In the northern district, a short line of about 25 miles from the head of Kaituma Creek to Arakaka, on the Upper Barima River, and thence to the gold fields of that part. In the central district, a railway from near the junction of the Cuyuni and Massaruni rivers to the nearest point at which British territory approaches the savannas of the old mission and mining district of the Orinoco. In the northern subdivision of the southern district, a railway from Bartica Grove, on the Essequibo, to the Brazilian frontier at the nearest point to the Rio Branco branch of the Amazon is desirable.

RAILROADS OF COLOMBIA.

According to official information, there were in the Republic of Colombia, at the close of the year 1900, 605 kilometers (376 miles) of railroad, distributed as follows in eight of the nine Departments:

Department of Antioquia.—A constructed line 68 kilometers (42 miles) long from Puerto Barrío, on the Magdalena River, to Caracolí. This railroad is being built by the departmental government of Antioquia, assisted by the National Government, and is destined to reach Medellín, capital of the Department and a center of much commercial importance. The length of line as surveyed between Puerto Barrío and the city of Medellín is 190.37 kilometers (118 miles). It has already been constructed beyond Caracolí, but that city is the present inland terminus of operations. The main office of the company is at Medellín. This railroad was located and in part constructed by the late Francisco J. Cisneros, a citizen of the United States, and its manager and chief engineer until recently was Mr. Whitteken, also a citizen of the United States.

Department of Bolívar.—A railroad 107 kilometers (66 miles) long between the city of Cartagena and the port of Calamar, on the Magdalena River, constructed and operated by the Cartagena-Magdalena Railway Company, an American corporation, of which Francis R. Hart, of Boston, Mass., is president and J. T. Ford, of Cartagena, Colombia, is vice-president and general manager. In the same Department, a railroad 45 kilometers (28 miles) in length connects the city of Barranquilla with Puerto Colombia, also known by the name of Sabanilla, through which port Barranquilla's ocean shipments are made.

Department of the Cauca.—A Government railroad 40 kilometers (25 miles) in length, running from Buenaventura, on the Pacific Ocean, to San José. The road is intended to reach the city of Cali, 138 kilometers (86 miles) from Buenaventura. The work of constructing the railroad goes on, but it is not expected to be completed to Cali before the expiration of about seven years. This line already renders very valuable services, and its importance will be very considerably increased when it shall have reached the last-named city, the heart of the rich valley of the Cauca.

Department of Cundinamarca.—This important Department, in which is situated the capital city—Bogotá—has four railroads in operation. The Savanna Railroad, between Bogotá and Facatativá, is 40 kilometers (25 miles) in length. Passengers and freight between Bogotá and the Atlantic coast make use of this line, which

forms an indispensable link in the chain of communication. The road is the property of the National Government. The Northern Railroad connects Bogotá and the city of Zipaquirá, where are located some of the most remarkable salt mines in the world. Its length, as constructed and in operation, is 60 kilometers (37 miles). An extension of this line to the Magdalena River, at a point well below Honda, is perfectly feasible and would be the beginning of the solution of the transportation problem between the city of Bogotá and the Atlantic coast. The Southern Railroad, between Bogotá and Soacha, has a completed length of 11 kilometers (7 miles). The Giradot Railroad is in operation from the port of that name on the Upper Magdalena River to Juntas de Apulo, a distance of 40 kilometers (25 miles). Bogotá is contemplated as the interior terminus of this road, which would make the total length of line 155 kilometers (96 miles). Construction work has already been effected as far as Hospicio, and would have been carried farther if the war had not interfered.

Department of the Magdalena.—A railroad 67 kilometers (41.6 miles) long, extending from the city of Santa Marta, on the Atlantic coast, to the Sevilla River. The contemplated interior terminus of this line is El Banco, on the Magdalena River, a distance of 375 kilometers (233 miles).

Department of Panama.—The Panama Railroad, between Colon and the city of Panama, 78 kilometers (48 miles) in length, owned by an American corporation, with headquarters in the city of New York.

Department of Santander.—The Cucuta Railroad, between San José de Cucuta and Puerto Villamizar, on the Zulía River, on the Venezuela frontier. This road is 55 kilometers (34 miles) in length.

Department of the Tolima.—The Ladorada Railroad, between Ladorada and Arrancaplumas, 34 kilometers (21 miles) in length. This road is the property of an English corporation and was built to avoid a dangerous stretch of river navigation in the vicinity of Honda. Arrancaplumas is, in fact, a suburb of Honda. The Tolima Railroad, which has 3 kilometers (1.8 miles) constructed and in operation, is intended to connect the important city of Ibagué with the port of Giradot, 60 kilometers (37 miles) distant, on the Upper Magdalena River. There are no indications of an early resumption of work on the last-named road.

CHAS. BURDETT HART,

BOGOTÁ, March 8, 1901.

Minister.

GERMAN COMMERCIAL ACTIVITY IN SOUTH AMERICA.

Under date of March 20, 1901, Vice-Consul-General Murphy, of Frankfort, says:

As of possible interest to American exporters and importers and to persons or firms interested in the development of South America and the extension of our commercial influence there, I inclose brief translations of five items of news published on March 1, 1901, in the *Südamerikanische Rundschau*, a Berlin journal which is devoted exclusively to the furthering of German interests in South and Central America. The rapid extension of Germany's direct lines of steamship connection with our southern neighbors, the growth of German colonies there, and the consequent increase of German influence and trade, especially in southern Brazil, should, in my opinion, arouse a feeling of friendly rivalry in American business circles if we intend to maintain our position in these rich markets. Geographical advantages and political sympathy can not alone win or hold markets in these days of keen international competition. We must emulate the enterprising spirit of the Germans, especially in the extension of our direct steamship connections with Central and South America, if we hope to be able to continue successful competition with our great commercial rivals in those countries.

INDUSTRIAL PROBLEMS OF GERMANY IN BRAZIL.

At a meeting on February 7, 1901, of the Central Society for Commercial Geography in Berlin, Prof. Ferreira de Mello, of the University at Sao Paulo, Brazil, delivered an address on the industrial problems of Germany in Brazil. The lecturer began by saying that he was in no way speaking as a representative of the Brazilian Government, or of one of its States, or of a syndicate of any kind, but as an individual who was convinced of the correctness of his statements. He praised with enthusiasm the wonderful progress of Germany in every direction and expressed his regret that, in recent years, Germany has somewhat neglected its commerce with Brazil. While the trade between Brazil and Italy, Great Britain, and the United States has been constantly increasing, that between Brazil and Germany has been falling off more and more. This the speaker, as a true friend of the Germans, deplored, because Brazil has inexhaustible riches, which are now going to the competing countries. The German exportation to Brazil of hops and beer, implements and machines, and silks and other textiles is declining. This seems the more remarkable as Germany's general exportation has doubled since 1880. It is true that the value of Brazil's foreign trade has also diminished, although the amount of wares imported and exported has increased. This is due to the decline in prices of the principal articles of export. The exportation of coffee, cocoa, sugar, cotton, caoutchouc, leather, cocoanuts, and tobacco has increased. In the

opinion of Mr. de Mello, three important industrial problems should interest German enterprise and German capital:

- (1) The opening and colonization of the Middle and Upper Amazon Valley.
- (2) The establishment of lines of river steamers on the Amazon and its tributaries above Manaus, especially on the Madeira River.
- (3) The building of a railway along the coast from Pernambuco to Rio de Janeiro.

The lecturer stated that the middle and upper valley of the Amazon comprises a territory eight times as extensive as the German Empire. This region is covered with virgin forest, and its soil is capable of producing every kind of tropical merchandise. On the left bank of the river there are rich deposits of minerals which are awaiting development. The average temperature is 27° R. (92° F.), which is not too high for German colonists. As the Government is willing to sell the land at from 5 to 20 marks (\$1.25 to \$5) per hectare (2½ acres), enterprising Germans could, with a very small capital, soon accumulate considerable fortunes. Until recently, not a single German steamer could be found at Manaus; but in August, 1900, the Hamburg-American Line established connection with this place. Above Manaus, however, the German flag is still unknown, although the success of the subsidized Brazilian line shows that the trade is profitable, this company being able to declare 10 per cent dividends. By this route, it would be possible to handle the wealth of the interior—caoutchouc, as well as Peruvian minerals—now laboriously transported over the Andes to the west coast, which is so much more remote from Europe.

The east coast of the State of Pernambuco as far as Rio de Janeiro not only produces iron, zinc, silver, gold, and other minerals, but is also suitable for the colonization of German emigrants. The railway from Pernambuco to Rio de Janeiro could be constructed for a relatively small sum. Its length would be about 1,770 kilometers (less than 1,200 miles), and careful estimates fix the cost at not more than 12,000 marks (\$3,000) per kilometer (0.622 mile).

At the close of Mr. de Mello's address, the president of the society felt compelled to correct a few mistakes which Mr. de Mello had made. He pointed out that German trade with Brazil was not as unimportant as Mr. de Mello indicated, he having made the mistake of taking the official German statistics as the basis of his calculations. These statistics do not take into account the immense importations into the free ports at Bremen and Hamburg. Bremen is still the principal tobacco market and Hamburg the principal coffee market of central Europe, and so long as this continues there can be no danger of a falling off of Germany's trade with Brazil. Furthermore, the German steamship lines occupy such a strong position in the South American traffic that, for instance, the North American commercial fleet is entirely unable to enter into competition with them. Not less than five large German steamship companies are engaged in trade with South America, and especially with Brazil. The number of their vessels is between 90 and 100. Furthermore, not only in the central provinces, but especially in the south, where there are already over 240,000 German colonists, the German commercial spirit has completely driven out the English.

The president then expressed the opinion that the Amazon and coast regions of Brazil are less suitable for German colonization than is southern Brazil, on which the great German colonization societies have had their eyes for many years. The building of a railway from Pernambuco to Rio de Janeiro would, moreover, probably not be a paying investment, as passengers would no doubt prefer to make the journey by sea rather than take the long land trip on a tropical railway. In regard to the development of river navigation, the speaker expressed the opinion that this is a matter which it may be well to carefully inquire into.

INCREASE OF FREIGHT RATES BETWEEN GERMANY AND SOUTH AMERICA.

It is reported that an agreement has been reached by the Hamburg-American Line and the Hamburg-South American Steamship Company in regard to the traffic with the eastern coast of South America. The main point of agreement is that two-thirds of the profits are to go to the Hamburg-South American Steamship Company, and that the Hamburg-American Line is to receive one-third. Since January 1, 1901, the freight rates have been raised to their former level, and a ruinous competitive struggle has ceased.

PROFITABLE STEAMSHIP CONNECTION BETWEEN GERMANY AND SOUTH AMERICA.

At a meeting of the directors of the Hamburg-South American Steamship Company, which took place at Hamburg on February 24, 1901, a dividend of 10 per cent was declared for the year 1900, which was the same as in the preceding year. This very satisfactory result is evidence of intelligent management on the part of the company, and is also a striking proof of the value and importance of the South American market.

RAILWAYS IN SAO PAULO, BRAZIL.

As is well known, the State of Sao Paulo is one of the centers of German colonization in southern Brazil. At the close of 1900, there were in this State 3,313.1 kilometers (nearly 2,000 miles) of railways. During 1900, only 97 kilometers (58 miles) of new line were completed, though 603 kilometers (360 miles) were in course of construction. Concessions had also been made for 1,689 kilometers (over 1,000 miles) of new lines upon which work had not been commenced.

TRAFFIC OF GERMAN-SOUTH AMERICAN STEAMSHIP LINES.

The annual report of the Kosmos Steamship Company, of Hamburg, contains much interesting information relative to Germany's commercial progress in South and Central America. The following excerpts from this report are published in the April number of the Berlin Südamerikanische Rundschau (South American Outlook):

THE KOSMOS STEAMSHIP COMPANY, OF HAMBURG.

The net profits of the Kosmos Company in 1900 amounted to 4,128,560.16 marks (\$982,595), considerably exceeding the amount earned in the preceding year. The company was accordingly able to declare a dividend of 15 per cent. During the year, the voyages of the Kosmos steamers on the west coast of America were extended much farther north than heretofore, namely, to San Francisco. These trips are now made once in every three weeks, and the results are satisfactory. A failure of crops in Chile materially contributed to the company's success, as it became necessary to transport large quantities of grain to the south. Under normal conditions, it is believed that the Kosmos Company's line to California will be a profitable one, in spite of competition. While the traffic between California and the west coast ports has proved very satisfactory, the direct traffic between Europe and California (as well as Mexico) and vice versa has been disappointing.

By an agreement which has been effected with the Mexican Government, the payment of port charges is not required at Acapulco, Manzanillo, San Blas, and Mazatlan.

In Central America, business is largely dependent upon the prices paid for coffee, the principal article of export. These have unfortunately again fallen, but, in spite of this, the Kosmos Company is satisfied with the results of its Central American business in 1900.

The traffic with Peru continues to improve. This is partly due to the increased exportation of ore. Many mines which were abandoned for years are now again being worked. As most of these ores go to England, English steamship lines naturally get the larger part of the business; but the Kosmos Company also participates in this profitable carrying trade.

In spite of its crop failure, Chile maintained in 1900 its ability to buy, owing to favorable copper and saltpeter prices. It accordingly assisted the Kosmos Line considerably with freights to and from Europe.

Owing to a rise in wages and the price of coal, this company was obliged to raise its freight rates somewhat in 1900, but not nearly so much as other companies.

Strikes have seriously interfered with the completion of new vessels for this line. Three new steamships will, however, soon be added to its fleet.

An agreement has been effected with the Hamburg-American Line which, it is believed, will prove advantageous to both companies. In consequence of this agreement, the Hamburg-American Company will add three of its ships to the twenty-eight Kosmos ships in 1901. This increase in the number of vessels employed was rendered urgently necessary by the establishment of the San Francisco line.

The same journal contains the following:

THE HAMBURG-AMERICAN LINE'S SOUTH AMERICAN BUSINESS.

The annual report of the Hamburg-American Line for 1900 shows that it was able to pay to its stockholders a dividend of 10 per cent, aggregating 8,000,000 marks (\$1,904,000).

This company is directly interested in the newly established steamship company "Italia," whose one vessel has already established profitable intercourse between Genoa and the La Plata States. A second steamer is now ready for this line.

The newly founded Hamburg-North Brazil Line has proved self-supporting, but before it can become profitable, there must be a considerable improvement at Para in the arrangements for loading and unloading ships. Further advances were made by this company in 1900 in its efforts to complete the direct connection of South America with Hamburg. The lines of the firm A. C. de Freitas & Co., in Brazil and the La Plata States, were purchased for this purpose, and the services of the employees of this firm were secured. Thus, in the past year, fourteen vessels were added to the fleet of the Hamburg-American Company in South America. In like manner, the Antwerp-La Plata Line of Messrs. Gellatly, Hankey & Co. was also acquired. An agreement has been effected with the Hamburg-South American Steamship Company, in order to obviate competition. This agreement also extends to the North Brazilian and Genoa-La Plata lines. An agreement has likewise been effected with the Kosmos Company which will increase the importance of Germany's commercial influence in South America.

GEO. H. MURPHY,
Vice-Consul-General.

FRANKFORT, April 6, 1901.

RECIPROCITY TREATY BETWEEN CHILE AND NICARAGUA.

Minister Merry transmits from San José, March 29, 1901, translation of parts of the recent reciprocity treaty between Chile and Nicaragua, according to the terms of which the following articles are exempt from customs duties in Chile: Unrefined sugar of any grade and color; coffee; tobacco, unmanufactured; medicinal plants and herbs, indigo, rubber, cacao, dyewoods, cabinet and building timber. In the open ports of Nicaragua, fine wines, flour, fruits and vegetables (fresh, dried, or preserved, in paste, dry, and pressed), potatoes, and saltpeter are exempt. The customs authorities and consuls of each country shall certify the shipments. Vessels of both countries shall be considered for the purpose of coastwise commerce as though they were under their own flag. If either country makes a treaty of the same character with another country, excepting Venezuela, Ecuador, and Central America, this treaty is without effect if the other country so desires. The duration of this treaty shall be five years, counting from the date of its ratification.

The minister believes that trade between the two countries will be materially extended by this treaty.

CART-ROAD CONCESSION IN NICARAGUA.

Consul Donaldson, of Managua, March 21, 1901, informs the Department that Mr. E. W. Perry, in behalf of a United States syndicate, has secured a contract from the Government of Nicaragua to construct three cart roads, leading, respectively, from Matagalpa, Nueva Segovia, and the Pis-Pis mines, in the Cabo Gracias district, to the head of steamboat navigation on the River Coco Wanks or Segovia. The roads are to be completed and delivered five years from the date of ratification by the Nicaraguan Congress.

In payment, the Government of Nicaragua will grant Mr. Perry alternate lots, 2 kilometers square, of public lands contiguous to the proposed routes.

This syndicate, says Mr. Donaldson, has just purchased the exclusive right to navigate the Coco Wanks, and, in order to place their steamer service on a paying basis, will build these roads to bring down to the river the products of that section of the country.

The consul adds that the Coco Wanks is the largest stream in Nicaragua, being navigable to a series of rapids 160 miles from its mouth, at which point the cart roads will converge.

RAILWAY SUBSIDIES IN CANADA.

Up to the present time, \$88,884,557 and 39,725,130 acres of land have been granted by the Dominion Government to the railways of Canada. Of these amounts, the Canadian Pacific has received 25,000,000 acres of land and \$62,742,816, the remainder being divided among other railroads. In addition, the various Provinces have granted \$31,310,170 and the municipalities \$15,884,542, making a grand total of \$136,079,269 of public money paid in subsidies to Canadian railways, every mile of which is in private hands.

Aid has also been granted by the Government of Ontario to the Manitoulin and North Shore Railway, which is said to be the boldest railroad scheme ever proposed in that Province. The road will begin at Medford (northwestern Ontario), run up the Bruce Peninsula, cross by ferry from Tober Moray to Manitoulin, and run through Manitoulin to Little Current, on the north shore. From the latter place, it will go north and west toward Lake Superior, with a branch line to Sudbury. It has also been proposed that the line be extended to form a connection with the transcontinental system at Port Arthur, car ferries being used along the northern shore of Lake Superior.

The subsidy is in the form of a grant of 2,500,000 acres of land. The grant, however, does not include the pine timber. In return, the company is to build the railway and have it in operation by June, 1906; erect, within two years, a smelter of 300 tons capacity for nickel or other ores; export no spruce in an unmanufactured state; and, lastly, place at least one thousand settlers yearly on the lands granted.

MONCTON, *April 20, 1901.*

GUSTAVE BEUTELSPACHER,
Commercial Agent.

PETROLEUM IN CANADA.

The production of petroleum in Canada is practically confined at present to the counties of Lambton, Kent, and Bothwell, in the southwestern part of the Province of Ontario. The town of Petrolia, in Lambton County, is the center of the principal district of production, while the work of refining is carried on in Sarnia, about 14 miles distant, the crude oil being pumped through pipes to the refineries. In this Ontario oil district, there are about nine thousand oil wells in operation, and the average monthly yield is nearly 60,000 barrels. The ratio of crude petroleum to refined oil is about 100 to 40, so that more than 2 barrels of petroleum are

required to make 1 barrel of refined oil ready for household use. The process of manufacture is complicated, and an expensive plant is required. The oil is first distilled from the petroleum, the latter being dark in color. The distilled oil is then refined, and lastly it is bleached or clarified. From the mud-colored petroleum, an illuminating oil as clear as water is obtained. It is then ready for shipment in barrels or tanks.

The oil is in every case found in the Corniferous limestone, and the different producing areas present local dome structures on the main anticlines, which afford good reservoirs for the accumulation of oil.

The oil is pumped from an average depth of 465 feet.

In 1899, there were produced in Canada 11,883,627 gallons of illuminating oil of a value of \$1,197,870. The production of that year was equivalent to 748,667 barrels.

During 1899, there were imported into Canada oils to the value of \$1,408,000, upon which duty was paid to the amount of \$589,000. This included illuminating oils, animal oils, and vegetable oils. The larger portion of the total importation was made up of coal and kerosene oils, several grades used in Canada coming from the United States. The importations of linseed oil were also very large, running up to \$332,000 in value, exclusive of the duties, which amounted to \$64,000 upon this one article. Lubricating oils are also very largely imported, the value of the imports in 1899, including duty, being upward of \$100,000.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *April 15, 1901.*

THE VANCOUVER COAL MINES.

The most important factors in the prosperity of Vancouver Island are the rich coal mines that have been developed all along its eastern coast, which give employment and livelihood to thousands of people.

Until of late years, the Vancouver Island mines have had no rivals in British Columbia and have practically monopolized the coal trade; but the development of the Crow's Nest coal mines in the southeast portion of the Province, recently purchased by an American syndicate, now in control, has prevented any increase of the consumption of Vancouver Island coal on the mainland, though it is claimed that the Canadian Pacific Railroad, which still uses the island coal, regards it as superior for making steam to the product of the Crow's Nest mines. It is stated that the Crow's Nest mines are the largest on the coast; capable of producing, when properly worked, 10,000 tons of coal daily, and even at that rate of lasting several hundred years. The present product of these mines amounts to less

than 1,000 tons per day and can not be largely increased until a way is found to reach the United States. A bill is now before the legislature and the Dominion Parliament asking a charter for a railroad from Michel, British Columbia, to the international boundary, where connection is made with the Great Northern Railroad. The company is ready to build the road without bonus or land grant of any kind, but is, of course, opposed in their application for charter by the Canadian Pacific Railroad, aided by parties who oppose all roads that lead to the United States.

There has been quite a change in the mines of Vancouver Island during the past year. The coal mines at Comox, the most northern, have been worked to their fullest capacity and one or two new shafts dug out. It was in one of these new shafts (No. 6) that a terrible explosion took place on Friday, February 15, 1901, by which sixty-four miners, all who were working in the shaft, lost their lives. Of the dead miners, twenty were whites and the remainder Asiatics. Since then work has been resumed, and the mine is again being run to its full capacity.

At Wellington, the mines have been worked out and abandoned—and so has the town itself, practically. Before the work ceased there were frequent “cave-ins,” involving loss of life and property. During the past year, the principal buildings there have been moved away to other towns, and, by petition of the remaining inhabitants, the municipal charter has been surrendered and revoked. The repair shops of the Esquimalt and Nanaimo Railway, however, still remain there. It is understood that if the road is continued north to Hardy Bay, the shops will be kept at Wellington. A charter has been applied for to authorize the extension of the railroad, which will probably be granted; but whether the road will be built is yet to be determined.

The mines at Nanaimo, extending from the town under the bay to Protection Island, are worked to their full capacity, and ship as much coal as all the other mines of the island combined. These mines are worked entirely by union men, and no Asiatics are employed underground. The result is that Nanaimo is represented in the provincial legislature by two labor men, while the seat in the Dominion Parliament is filled by the secretary of the miners' union. Strikes have so far been avoided, although one was set for March 1, 1901; but the management met the committee representing the miners and showed the contracts of the company, many of which were made before the present provincial tax of 5 cents per ton was levied, and the men have so far continued without increase. In these mines, the miners receive 68 cents per ton and make an average of \$4 to \$4.50 per day.

The Alexandria mine is closed, and has been since last December.

The management gives as reason for closing that there is no demand for the coal, which was chiefly sent to San Francisco. Since that time, the whole force of 180 men previously employed in the mine has been lying idle, save those who have gone to work in other mines. The miners claim that the real cause for closing the mine is that the management insisted that 2,800 pounds should constitute a miner's ton, instead of 2,352 pounds, as had previously been the rule; and, further, that nothing should be allowed for "turning places," which are quite numerous in this mine. The management states that the United States duty of 67 cents per ton, the 5-cent tax, the eight-hour law, and the discovery of oil in California render the market unprofitable; and further intimates that the general output of Vancouver Island coal mines may have to be curtailed in the near future, owing to the competition of the Washington mines, and of California oil. A number of the unemployed and their families are now receiving relief from the Nanaimo and other unions.

The Extension mines, owned by the same company (the Wellington Colliery Company), are distant 12 miles only from the Alexandria. It may be stated that all the coal mines of the island are on the east coast, within a radius of less than 40 miles. The Extension mines are running as usual and frequently are unable to supply the demand for coal, vessels having to wait their turn at the wharves before receiving their needed supply. Forty or more of the miners who formerly worked at Alexandria have secured work in the Extension mines, where 72 cents per ton is paid miners, against 66 cents in the Alexandria mine.

The operation of the Extension mines has resulted in the building and incorporation of a new town at Oyster Bay, known as Ladysmith, which already has 1,200 inhabitants, several stores, hotels, etc., and bids fair to become a thriving city, although entirely dependent, as was Wellington and as are Nanaimo and South Wellington, on the mining industry. Here, bunkers capable of holding 20,000 tons of coal have been erected, and tracks run direct to the wharves from the mines at Extension, 14 miles away. Many of the miners reside in small shanties close to the mine, but the management prefers to have them live at Ladysmith. To this end, lots are sold miners for \$100 each and neat cottages erected for them, payable on the installment plan. Trains run at convenient hours for the different shifts of miners, and transportation is without cost. All the men are paid at Ladysmith, which is the headquarters of the management of Extension mines.

ABRAHAM E. SMITH,
Consul.

VICTORIA, *March 16, 1901.*

MINERAL PRODUCTION OF BRITISH COLUMBIA.

I am indebted to the minister of mines for the following advance statement (subject, perhaps, to a few slight corrections), showing the mineral production of British Columbia in 1900:

Product.	1899.	1900.	Increase.	Per cent.
Total mineral.....	\$12,393,131	\$16,407,645	\$4,014,514	25
Total metal.....	8,186,504	11,340,756	3,244,252	40
Total lode mines.....	6,751,604	10,162,032	3,310,428	49
Lode gold.....	2,857,573	3,461,187	603,514	21
Silver.....	1,643,708	2,295,000	651,292	38
Copper.....	1,351,453	1,615,289	263,836	19.5
Lead.....	878,870	2,690,557	1,811,687	206
Coal and coke.....	4,053,651	5,060,880	1,017,228	25
Placer gold.....	1,344,900	1,278,724	*66,176	*5
Total	39,391,344	54,218,078	14,826,684	.....

* Decrease.

A decrease is shown in the product of placer gold, which, the Minister of Mines says, is accounted for by the Cape Nome excitement of last year, which drew away a number of the miners of the Province, and by the fact that some of the hydraulic plants which have been installed in the Atlin country have not yet commenced work. The number of shipping mines in the Province is given as one hundred, which, it is expected, will increase next year with the establishment of smelters.

The quantity of ore mined in British Columbia in 1899 was 287,343 tons; in 1900, 554,796 tons—increase, 267,453 tons, or 93 per cent. The number of mines shipping over 100 tons each per year was in 1899 only 43; in 1900, there were 60.

The number of miners employed underground during 1900 in the Province was 2,426; number of miners employed above ground at same time, 1,305—making a total of 3,731 miners employed in British Columbia last year.

ABRAHAM E. SMITH,

VICTORIA, *March 16, 1901.*

Consul.

CONDITIONS IN THE YUKON.

The Dominion Government has decided to reduce the royalty on gold mined in the Yukon from 10 per cent to 5 per cent. The 10 per cent royalty was imposed during the first outburst of excitement over the discoveries of gold in the Klondike region, before the conditions attending the work of prospecting, mining, and converting

the ore were fully realized. The general impression was that the gold was in "pockets," as easily opened as a silo on a farm. The more the labors and privations and risks of the miners became known, however, the more clearly was it seen that a 10 per cent royalty was so onerous an impost on gold secured under such conditions that it tended to discourage mining operations. Considering the great expense incident to the opening up of the Yukon—of its government and administration—the reduced royalty must be regarded as an equitable tax. The Government is commended for the reduction, as well as for its efforts to establish law and order and facilitate transportation in the Klondike region.

The rush to the Yukon and Alaska gold fields for the season has already begun and will be large.

The news from Dawson is highly satisfactory. Increased and more systematic work is being done. The discovery of the new placer diggings on Clear Creek about five months ago is said to be the most important since the original discovery of the Klondike. Clear Creek is a branch of the Stewart River, which runs into the Yukon. Looking in a northeasterly direction from the summit of the dome at the head of Hunker Creek, the position of the new placers can be easily discerned. Although over a thousand claims have already been recorded in the new district and some gold has been taken out, it is impossible to accurately gauge the value of this discovery; but sufficient prospecting has been done to show an extensive area of gold-bearing gravel, which is likely to add considerably to the output from the Klondike district.

A new regulation of the Government for placer mining in the Yukon Territory has been substituted for those established on January 18, 1898. One of the provisions is that a free miner's certificate may be granted for one or more years, not exceeding five, upon payment in advance of the fees prescribed by the regulations for each year covered by the certificate. For a certificate issued in favor of an individual, the fee is \$10; for a joint-stock company having a nominal capital of \$100,000 or less, \$50; and for a company having a nominal capital exceeding \$100,000, \$100. Only one person or joint-stock company shall be named in a certificate.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *April 1, 1901.*

BRITISH COLUMBIA SALMON INDUSTRY.

As this is the fourth year since the phenomenal run of 1897, cannery men confidently expect—as has been the case every fourth season for some time—a good run of salmon, and great preparations are in progress for the anticipated catch. Last year, the total yield was much smaller than that of any season since 1895, and, as there are no stocks left on hand, it is hoped that good demands and high prices will prevail. The total pack of salmon on the coast last year is placed in round figures at 2,500,000 cases. Of this number, British Columbia furnished 583,413 cases, which realized the handsome sum of \$2,187,000.

It is known that the salmon caught on Puget Sound originate in the Fraser River in British Columbia. With a view to securing a continuation of the supply of this valuable fish, the catching and preparation of which furnish employment for thousands, and in which millions of dollars are invested in both British Columbia and the United States, the legislature of Washington, on February 27, 1901, adopted a joint resolution appointing a committee of three to confer with a similar committee appointed by the provincial parliament of British Columbia "relative to the establishment of and maintenance upon Fraser River and its tributaries in the Province of British Columbia of a fish hatchery for the artificial propagation of salmon."

This resolution was forwarded to the consul of the United States at Victoria, and by him brought to the attention of the government of British Columbia. In reply, Premier Dunsmuir said that the control of the fisheries of the Province rested solely with the Dominion authorities, and that the provincial legislature could therefore take no action in the premises without special authority granted by the Government at Ottawa. It is understood that an effort will be made to establish the hatchery by private parties.

There was considerable trouble on the Fraser River last year with regard to the price paid fishermen for salmon—no traps being allowed in British Columbia waters. The business was largely controlled by the Japanese, in spite of the fact that British subjects only are allowed to take out fishing licenses.

Heretofore, the tin used in the manufacture of salmon cans has been brought in sailing vessels from England around Cape Horn, but some of the proprietors of canneries are now using the American product, and next year it is expected that many of the British Columbia canneries will purchase their tin in the United States.

Following are the official statistics of the salmon industry in British Columbia for the past six years:

Pack by districts last six years.

Districts.	1900.	1899.	1898.	1897.	1896.	1895.
	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>
Fraser River.....	316,522	510,383	256,101	860,459	356,084	400,368
Skene River.....	128,529	108,026	81,234	65,905	100,140	67,797
Naas River.....	18,238	19,443	18,953	20,847	14,649	19,550
Lowie Inlet.....	10,834	10,142	10,312	10,666	10,395	8,681
China Hat.....	4,138					
Rivers Inlet.....	75,413	71,079	104,711	40,207	107,468	58,579
Bella Coola.....	4,849					
Namu.....	10,106	7,200		4,357	3,987	3,000
Alert Bay.....	9,182	3,470	8,500	8,602	2,840	5,100
West Coast, Vancouver Island.....	7,602	2,694	4,359	4,434	5,107	3,320
Total.....	585,413	732,437	484,161	1,015,477	601,570	566,395

Shipments in detail last six years.

Shipped to—	1900.	1899.	1898.	1897.	1896.	1895.
	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>	<i>Cases.</i>
England:						
London—						
Direct.....	51,095	150,670	79,598	325,966	182,253	96,459
Overland.....	10,143	5,733	5,687	4,957	9,076	.....
Liverpool—						
Direct.....	257,848	365,151	242,437	407,738	322,364	256,301
Overland.....	60,000	26,128	8,050	38,373	11,405	65,647
Via other ports.....	3,802		19,862	.....	.....	29,500
Eastern Canada.....	79,171	114,736	87,881	130,815	51,041	79,288
Australia.....	25,903	41,518	9,644	28,579	11,609	8,832
Other destinations.....	56,237	4,246	439	226	2,128	.....
Local sales.....	20,309	11,945	1,183	4,823	3,844	4,326
Stock on hand.....	20,815	12,079	29,380	74,000	7,850	25,952
Lost.....		231	.....	.....	.....	.....
Total.....	585,413	732,437	484,161	1,015,477	601,570	566,395

Shipments, British Columbia salmon fleet, 1900.

	<i>Cases.</i>
Fiery Cross (to London direct).....	51,095
To Liverpool direct:	
Clan McKenzie.....	69,451
Ardnamurchan*.....	73,578
Naiaid.....	46,720
Machrihanish.....	68,099
Total cases by sea to England.....	308,943

ABRAHAM E. SMITH,

VICTORIA, March 30, 1901.

Consul.

*The *Ardnamurchan* is believed to have been lost. The ship has not arrived at England, and numerous cases of salmon and wreckage known to belong to that vessel have been picked up along the Pacific coast.

SALMON FISHERIES IN BRITISH COLUMBIA.

The salmon canners of British Columbia have united in an association which practically controls the whole industry in this Province. It is claimed that such a combination is necessary to enable the fisheries here to compete with those in the States of Oregon and Washington.

A memorial from a committee of the Salmon Canners' Association to the Government of British Columbia sets forth that the fishing industry is of paramount importance in the coast district of British Columbia, the value of the property being estimated at not less than \$2,000,000. The number of people employed during the season exceeds 15,000. There are 74 canneries. During the season of 1899, on the Fraser River alone, there was paid to fishermen, for fish only, approximately \$1,250,000. The revenue derived by the Dominion Government in 1899 from this industry was \$47,865.

The canners urge the establishment of a fishery board, to make all requisite regulations to conserve the fish supply; the reduction of the license for fishing to \$2.50; also the levying of an assessment on each case of salmon packed in British Columbia, the revenue so derived to be used exclusively for the conservation of the industry.

A new hatchery, I understand, has been erected at a point on or near Shuswap Lake, about 200 miles northeast from Vancouver. This will turn out about ten million "fry" annually, against some six millions furnished by the old hatchery at Bon Accord.

It seems agreed by all persons on both side of the border that if salmon fishing continues as at present and no greater provision is made for artificial propagation of the fish, the supply in the Fraser River and on the northwestern coast of the State of Washington will soon be exhausted.

L. EDWIN DUDLEY,
Consul.

VANCOUVER, *April, 1901.*

UNEXPLORED CANADA.

The director of the geological survey of Canada, in his last report, makes the amazing statement that practically nothing is known of one-third of the Dominion. He says:

There are more than 1,250,000 square miles of unexplored lands in Canada. The entire area of the Dominion is computed at 3,450,257 square miles, consequently one-third of this country has yet been untraveled by the explorer. Exclusive of the inhospitable detached Arctic portions, 954,000 square miles is for all practical purpose entirely unknown.

A careful estimate is made of the unexplored regions. Beginning at the extreme northwest of the Dominion, the first of these areas is between the eastern boundary of Alaska, the Porcupine River, and the Arctic coast, about 9,500 square miles in extent, or somewhat smaller than Belgium, and lying entirely within the Arctic Circle. The next is west of the Lewes and Yukon rivers and extends to the boundary of Alaska. Until last year, 32,000 square miles in this area was unexplored, but a part has since been traveled. A third area of 57,000 square miles—nearly twice as large as Scotland—lies between the Lewes, Pelly, and Stikine rivers. Between the Pelly and Mackenzie rivers is another large tract of 100,000 square miles, or about double the size of England. It includes nearly 600 miles of the main Rocky Mountain range. An unexplored area of 50,000 square miles is found between Great Bear Lake and the Arctic coast, being nearly all to the north of the Arctic Circle. Nearly as large as Portugal is another tract between Great Bear Lake, the Mackenzie River, and the western part of Great Slave Lake, in all 35,000 square miles. Lying between Stikine and Laird rivers to the north and the Skeena and Peace rivers to the south is an area of 81,000 square miles, which, except for a recent visit by a field party, is quite unexplored. Of the 35,000 square miles south-east of Athabasca Lake, little is known, except that it has been crossed by a field party en route to Fort Churchill. East of the Coppermine River and west of Bathurst Inlet lies 7,500 miles of unexplored land, which may be compared to half the size of Switzerland. Eastward from this, lying between the Arctic coast and Black's River, is an area of 31,000 square miles, or about equal to Ireland. Much larger than Great Britain and Ireland, and embracing 178,000 square miles, is the region bounded by Black's River, Great Slave Lake, Athabasca Lake, Hatchet and Reindeer lakes, Churchill River, and the west coast of Hudson Bay. This country includes the barren grounds of the continent. Mr. J. B. Tyrell recently struck through this country on his trip to Fort Churchill, on the Churchill River, but could only make a preliminary exploration. On the south coast of Hudson Bay, between the Severn and Attawapishkat rivers, is an area 22,000 square miles in extent, or larger than Nova Scotia; and lying between Trout Lake, Lac Seul, and the Albany River is another 15,000 square miles of unexplored land.

South and east of James Bay and nearer to large centers of population than any other unexplored region is a tract of 35,000 square miles, which may be compared in size to Portugal.

The most easterly area is the greatest of all. It comprises almost

the entire interior of the Labrador peninsula or Northwest Territory, in all 289,000 square miles, or more than twice as much as Great Britain and Ireland. Two or three years ago, Mr. A. P. Lowe made a line of exploration and survey into the interior of this vast region, and the same gentleman also traveled inland up the Hamilton River, but with these exceptions the country may be regarded as practically unexplored.

The Arctic islands will add an area of several hundred thousand square miles of unexplored land.

The Government, during the past year, has made a great effort in the direction of exploring and developing this vast territory. It has recognized the fact that railroads are essential to the development of a new country, and liberal inducements for their construction are made by granting millions of acres of land as a bonus.

The proposed Manitoulin and North Shore Railway has been granted 2,500,000 acres. The act awards 10,000 acres per mile to the southern end of the road as an extra inducement to the early completion of this section. The northern-end grant is at the rate of 7,500 acres per mile. The proposed road will be of great value to this part of Ontario. Stratford, for instance, will then be only 365 miles from Sault Ste. Marie, or 183 miles nearer than via North Bay, as at present; Palmerston, another railroad center, will be 332 miles distant, or 245 miles nearer; and other places in this district will likewise be favorably affected.

The opening up of the Bruce peninsula will be stimulated by the new line running its entire length to Tobermory, which will become prominent as a railway terminus and lake port. Manitoulin Island, hitherto isolated from the rest of the world except during the season of navigation, will have the great obstacle to its development removed. The outside world seems to know but very little of this great island in the northern lakes. A prominent Manitoulin merchant, in a recent interview, made the following interesting statement about the island:

Make no mistake about the importance of Manitoulin alone. That island, with its population of 15,000, is exporting \$1,000,000 worth of products a year. That is but a fraction of what may be done. We have pasture lands sufficient to raise beef stock that will eclipse in numbers and quality the output of your best three beef counties; we could raise lambs enough to supply both Toronto and Buffalo; and we could, with proper railway facilities, put Manitoulin at the head in the butter and cheese products as well.

Then, there is all the rest of new Ontario behind this. What does that mean? Look at the Sault, which has jumped from 700 to 7,000 in a few years. And that is but the beginning. With its wealth of minerals, pulp wood, and possibilities in electrical energy developed from water power, new Ontario undoubtedly possesses wonderful resources.

The indications are that, during the next five years, at least 5,000 miles of new railroad will be completed throughout the Dominion, most of which will run through the unexplored wilderness.

The mineral wealth of this unknown region is undoubtedly immense, and perhaps almost inexhaustible; while the dense forests of hard wood, now of so little value, will, when brought to the markets of the world, become a source of large profit.

A. G. SEYFERT,

STRATFORD, April 11, 1901.

Consul.

UTILIZATION OF SUGAR-BEET WASTE.

In a recent report on the advance of the beet-sugar industry in the United States in 1899, the question of utilizing the beet heads and leaves which remain after harvest is treated as follows:

All who have any experience with them readily concede their nutritive value. If free from dirt, they would be an available addition to the list of silo plants, yet I can not help feeling that the ones who have given this subject most attention are right when they assert that these leaves are more valuable left on the ground in the fields as a fertilizer, inasmuch as they contain exactly the right elements that the soil needs, and in available form.

This judgment is now only partly true, says Mr. Ernest Anders, of Magdeburg, an acknowledged expert on sugar beets, since the chief reason has been discovered why the nutritive qualities (which, as we know by chemical analysis, are contained in the tops and leaves of the beet) have not been used to their greatest extent, and since this knowledge has roused the desire to seek for means to remedy this defect.

The chief reasons which prevent the rational utilizing of these agricultural by-products as stock food are the fact that they become mixed with earth and dirt, the impossibility of using more than a part of the by-products as fodder while they are still fresh (the greater part being spoilt by the influence of the weather), and, further, the tremendous loss of matter—often one-third of the whole mass—which results from the fermentation in silos.

The principal cause, however, is that the fresh leaves contain a poisonous matter. This is oxalic acid and its combination with potassium and sodium. The dry matter contains from 4 to 6 per cent of this poisonous substance, and even the fermented leaves contain from 2 to 3 per cent. The first effect of this poison upon an animal which has been fed with fresh leaves is to produce severe purgation,

and a continued use of the fermented leaves produces fractures of the bones. This last symptom is caused by the solubility of the oxalic acid. The easily soluble combinations of oxalic acid with potassium and sodium, as they are found in the beet leaves, are poisonous; but, on the contrary, the combination of oxalic acid with calcium (oxalate of lime) is but slightly, if at all, poisonous, because it is insoluble and therefore leaves the body. Should the food contain an insufficient quantity of lime, the deficiency must be supplied from that contained in the body of the animal itself, from the phosphate of lime which gives strength to the bones. This makes the bones of the animal poorer in lime and fragile. This has been demonstrated by Prof. Dr. Zuntz in the animal physiological laboratory of the School of Agriculture at Berlin. An attempt has been made to render the oxalic salts harmless by adding carbonate of lime to the food, or by scattering it among the leaves when storing them in silos, if possible in the form of precipitates obtained from the beet-sugar factories.

This, however, is to be recommended only in cases of necessity, as it raises the already high percentage of earthy impurities in the fresh as well as in the fermented leaves, and a satisfactory solution of this problem must therefore be sought elsewhere.

After many unsuccessful attempts, a German farmer named Wuestenhagen—part owner of the sugar factory Hecklingen, near Stassfurt, in this district—has succeeded in making an easily digestible food from the heads of the beet, together with the stems and leaves which are cut off at the harvest, by the following process: (1) Cleansing of the leaves from earth and dirt; (2) almost complete destruction of the oxalic acid contained in the leaves; (3) conservation of sugar contained in the heads; (4) slicing of the entire material; and, finally, (5) drying and storing of the same. Each of these five points is equally important. The discovery is patented.

The tops and leaves are left on the field about ten days to wither, during which time they lose from 80 to 85 per cent of the water they contain. At the same time, the leaves shrink together very much, so that when they are loaded on the wagon and well shaken by the workmen, a great part of the earth falls off. The material is then put into a revolving drum supplied with sieves, into which hot air streams. This dries the particles of earth and sand and almost all fall through the sieve.

These proceedings are followed by an almost complete decomposition of the oxalic acid, which interesting fact has been discovered by Prof. Dr. Maercker, of Halle.

The temperature of the hot air must not rise beyond a certain

point, in order that the heads of the beet may not lose any of their sugar contents. The material which has been in this way half dried is then cut up into slices, and the drying is completed at a lower temperature.

This sequence in the order of proceeding is very important. The heads and the leafy parts of the beet have a totally different construction from the surface of the leaves. If one attempted to dry the material without cutting it into slices, the leaves would be burned while the insides of the stems and the heads were still damp. If one were to cut the material into slices without drying it, the sticky mass which would result would be most difficult to dry.

The half-dried material must also be so cut that there can be no loss of the material during the removal of the impurities, which continues throughout the drying process.

Professor Maercker, who is known far outside of Germany as one of the best authorities in agricultural questions, says in a report that the dry material resulting from this process is a food with an admirable appearance; that it is composed of good substances and can be preserved a long time; that it has a healthy smell and a correspondingly bright color, which shows that the temperature during the process of drying has not been high enough to cause the decomposition of the sugar. It contains 14 per cent and more of sugar, while the percentage of oxalic acid has been reduced to 0.42 per cent. If one assumes that an acre of beets produces 6,000 kilograms (13,200 pounds) of by-products, the gain in dry food would be about 1,500 kilograms (3,300 pounds) per acre.

The firm of Buettner & Meyer, of Uedingen-on-the-Rhine, has also patented a system for drying the leaves, which is said to be somewhat different from that of Wuestenhagen.

It is presumed that in both systems the drying apparatus is used in connection with the sugar factory. Such an apparatus, with all the necessary accessories for drying the leaves and beet tops produced on an area of from 600 to 1,000 acres, would hardly be obtainable for less than 20,000 marks (\$5,000).

As the supply of leaves and heads comes at the same time as the supply of the beet, farms at some distance from the sugar factory would gain little advantage from such an arrangement, on account of the high costs of transport. It has therefore been proposed to erect small apparatus of this kind at railway stations or at some other place conveniently situated for a certain number of farms. Apparatus which could easily be transported would be the best for this purpose.

It is of the first importance to have a knowledge of the high value as food of the beet and its by-products, whether on the field in

the form of leaves and heads or in the factory after the sugar has been extracted, especially in the form of molasses and pulp.

Only when the farmers of the United States pay more attention to this question than has hitherto been the case can the beet-sugar industry be properly developed with us. To give an impulse in this direction is the object of this report.

MAX J. BAEHR,

MAGDEBURG, *April 2, 1901.*

Consul.

RUBBER AND GUTTA-PERCHA.

A lecture on rubber and gutta-percha was recently delivered before graduates of the Amsterdam Trade School by Mr. H. A. Berkhout, formerly forester in the Dutch East Indies and now teacher in the agricultural school at Wageningen, Netherlands; from this address I paraphrase the following, data remaining intact:

The quality of elasticity and of returning after stretching to its original form distinguishes rubber from gutta-percha, whose form is susceptible of easy permanent change. Both are impervious to water and are bad conductors of electricity. Mixed with carbon and vulcanized by the addition of sulphur, gutta-percha is largely used in the making of telegraph cables as an insulator in which the cables are imbedded. Gutta-percha is the product of one plant, while rubber is derived from over sixty plants. Three-fourths of the gutta-percha commercial product comes from Sumatra and Borneo, although, like tin, it is shipped from Singapore and not from Batavia.

The total world production of rubber may be estimated at 45,000,000 kilograms (99,207,000 pounds), of which nearly two-thirds comes from the Amazon Valley, one-third from Central Africa, and one-twentieth from Asia. The exportation from the Indian Archipelago is of slight influence upon the trade of the world. Most of the rubber produced is imported at North American ports. Liverpool imports more than all other European ports combined.

Rubber imports at Amsterdam ranged yearly from 1890 to 1898 from 9 to 34½ tons. Last year, although prices were good for all sorts, the arrivals from the Dutch colonies amounted to only about 17 tons. The importation at Rotterdam has fallen markedly, while at Antwerp it has risen; the fall at Rotterdam from 1890 to 1893 was from 591 tons to 242 tons, while the Antwerp imports rose from 5 tons to 2,014 tons, caused by improved conditions in the Kongo Free State. Rotterdam imports from the east and west coast of Africa fell from 363½ tons in 1894 to 259 tons in 1898.

The cultivation of gutta-percha is not advisable on a large scale,

as the tree is grown with difficulty and the native cuts it down to get the product. Gutta-percha is now extracted from the leaves of the tree as well as from incisions in the trunk. The total production in the world is about one-twentieth that of rubber.

FRANK D. HILL,

AMSTERDAM, *March 28, 1901.*

Consul.

ARTIFICIAL STONE.

I listened to an interesting lecture a few evenings ago on the manufacture of artificial stone from lime and sand, by Mr. W. Owen, a civil engineer of London, England, who purposes establishing a plant in this city. At the present time, similar plants exist in Australia, South Africa, England, and on the continent of Europe.

Owen stone, as it is called, of which the lecturer had several specimens on exhibit, is made as follows:

Quartzose sand is first dried by being heated; it is then thoroughly mixed with hydraulic lime in the proportion of about 12 per cent of the latter to 88 per cent of the former. This mixture, still in a dry condition, is packed into very strong molds of any desired shape, the filled molds being subsequently built up in a steel frame or box. The latter is conveyed by tramway to an immense steel cylinder, inside of which it is placed, the cylinder now being closed and the door strongly bolted. Water near the boiling point is then admitted until the cylinder is full, and an indicated pressure of from 60 to 70 pounds maintained. The water is kept in a highly heated condition by steam coils running along the length of the cylinder inside.

On the admission of the boiling water, the hydraulic lime in the molds commences to slake, and the pressure maintained assists in forcing the water into the sand and lime mixture so as to bring about complete slaking throughout the mass. The mixture being confined in strong molds, it follows that the expansion of the material consequent on slaking is not allowed free play, so that immense pressure is set up within the material itself, which tends to render it much more compact than might otherwise be the case.

It is important that as little air as possible should be admitted into the cylinder during the slaking; this is why the water is admitted at boiling point and the temperature kept up by steam coils instead of live steam being injected direct into the water.

When the lime is thoroughly slaked, the pressure and temperature are gradually lessened and the material is allowed to cool slowly. When the cylinder is opened, the mixture is found to be converted into solid stone. The latter is in a wet condition and becomes

harder in the course of twenty-four hours. The whole operation, from the packing of the cylinder to the withdrawal of the molds, occupies about fifty hours.

The manufactured stone and bricks may be molded into any form and are of a handsome gray color.

Mr. Owen says that a large demand exists for this artificial stone in London and in other large cities. It can be manufactured much more cheaply than natural stone can be furnished from the quarry.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *April 10, 1901.*

PREVENTION OF FROST BY CANNON AND SMOKE.

The last number of the *Gironde*, a Bordeaux newspaper which represents the wine growers of that region, contains an article by Mr. Bellot des Minières on the subject of preventing frosts from injuring early fruit. His theory is that it is not the frost which blasts the budding fruit, but the sun's rays following a night of frost and finding in the grape, already sensitive from the cold, an object unable to withstand their heat. After many experiments, which he says have always succeeded, Mr. Bellot des Minières recommends the accumulation at various points in the vineyard of combustible matter, capable of producing a thick, black smoke, and setting fire to these heaps of fuel at sunrise, so that a veil of smoke may cover the entire ground, protecting the vine by its opaqueness against the sun's rays and maintaining the general temperature of the vineyard at a point which will counteract the effects of the frost. The smoke, which acts as a warm blanket, lifts gradually enough for the vine to adapt itself to the changed temperature.

Since I reported on the subject of firing cannon for the prevention of hail storms,* the use of cannon for other allied purposes has been discussed in agricultural circles. Dr. Marangoni, professor of physics at the Royal Lyceum of Florence, Italy, has declared his belief in the efficacy of the use of cannon for the prevention of frosts. He says:

There are astonishing resemblances between the state of the atmosphere which produces hail and frosts. * * * An absolute calm is necessary for both. * * * In the phenomena of the white frost * * * the calm creates a very cold layer of air near the surface of the earth, saturating the otherwise dry air, and at the coldest moment the frost is formed. * * * The important object to be achieved in the case of both hail and frost is to break up the calm before either is formed.

* See ADVANCE SHEETS Nos. 807, 916, and 946 (CONSULAR REPORTS Nos. 241, 246, and 247).

He recommended that the cannon be fired horizontally over the ground to be protected. Under his direction, cannon were fired horizontally over the vineyards of Count Balli, at Asti, and he relates that a strip of vineyard 500 feet wide over which two cannon were fired was entirely protected, while the vines on each side were badly injured by the frosts.

At the central office of the agricultural societies in this part of France, I was told that extensive preparations are being made to test the efficacy of cannon against frost this spring.

One of the gentlemen who is working on this question said to me:

The frost is formed by the stored heat of the sun combined with an excess of dampness; * * * the firing of the cannon produces perturbations in the atmosphere, causing a slow transition between the coldest hour of the night and the coming of the heat of the sun.

It has just been determined to hold an international cannon congress in Lyons next November, in which this subject will be fully discussed, and I am requested to say that American representatives are invited to be present and to take part in its deliberations.

As an invasion of grasshoppers is announced for this summer in southern Algeria, cannon are to be tried against them also.

JOHN C. COVERT,
Consul.

LYONS, *April 23, 1901.*

CALIFORNIAN VS. SPANISH FRUITS.

The following translation from a Valencia paper has been received from Consul Bartleman, of that city, under date of April 10, 1901:

Spanish products are rapidly losing ground, and, unless our methods be brought into line with those of progressive nations, our wines, our oil, our fruits, and vegetables will be condemned to home consumption. We have been astonished at the falling off in our exports of fruit and fresh vegetables to France, England, and Germany. The decrease for France, notwithstanding the enormously enlarged consumption created by the Paris exposition, was erroneously attributed to Italian competition. The rivalry really comes from the United States. California is now supplying the French, English, and German markets with fresh fruit and vegetables. The fruits are not offered at lower prices than our own, but they are presented neatly packed and in splendid condition.

It is ridiculous to think that fruits and vegetables raised on the slopes of the distant Pacific should compete at the very doors of Spain with those produced in this country, yet the fact is undeniable. How is the mystery explained? It is simply this: Spain sends her fruit and vegetables in the worst possible condition, so far as packing and transportation are concerned; piled on wretched railway cars, exposed to sun and rain, and reaching Paris from fourteen to seventeen days after

their departure from Valencia; while the Californians offer their fruit in the same fine condition in which it is picked from the trees. Their oranges, apples, peaches, and pears reach Paris, after traversing 6,000 miles, in a more attractive and appetizing condition than ours after a journey of only 490 miles.

We can compete with America only by employing her methods—improved cultivation, harvesting, and packing, cold storage and rapid, safe transportation. Otherwise, our exports will decline every day. Castile was once called the granary of Europe; yet we have lived to see foreign wheat, after paying heavy transportation taxes, protective duties, and an adverse premium of 35 per cent in exchange, competing with our home-grown cereals. Shall we live to see American oranges competing with ours on the Valencia market itself?

SPANISH EXPOSITION OF HEATING APPLIANCES.

Consul-General Lay writes from Barcelona, April 19, 1901:

Referring to my report of February 22,* transmitting a prospectus of an exposition of Spanish mineral coal to be held this summer, and stating that I had written the chairman of the committee of this exposition for further particulars, I now inclose a circular giving information for intending American exhibitors of grates and other appliances for the combustion of coal.

I have explained to the committee that, owing to uncertain transportation facilities between the United States and Spain, unless an extension of time for admission of American exhibits were granted, it would be impossible for the United States to take part. The president of the exposition has to-day replied that American exhibits will be granted admission until June 20.

In my opinion, this exposition affords an excellent opportunity to introduce our grates, etc. In Barcelona, the most progressive city of Spain, modern heating appliances are certain to have a good sale in the future. After the exposition is over, exhibits may be sent to the northern coast to our consular agent at Bilbao, and arrangements made for exhibition there.

In order that American exhibits may be advantageously and suitably placed and shown, I have suggested to Mr. Kendall Park, No. 11 Calle Cristina, to arrange for representing those American exhibitors who have not made engagements with others here to do so. Mr. Park will look after the interests of our exhibitors satisfactorily. Upon receipt of instructions, he will employ experts to explain complicated appliances, if desired.

Exhibits should leave New York not later than June 1, by Spanish direct steamship line Compañía Trasatlántica, Ceballos & Co., agents, 80 Wall street, New York.

* See ADVANCE SHEETS No. 989 (March 20, 1901); CONSULAR REPORTS No. 248 (May, 1902).

Mr. Park's cable address is Park, Barcelona. A B C code used. The circular reads:

The exposition will include the following groups of native or foreign handicrafts, which will be admitted under the rules hereinafter stated:

- (1) Grates of all systems that tend to the more profitable use of coal.
- (2) Appliances, automatic or otherwise, for regulating the draft of the hearths.
- (3) Smoke appliances in general.
- (4) Automatic hearth feeders.

(5) Gas-extracting machines, by which coal is transformed into gas, either for heating purposes or for motive power.

(6) All kinds of appliances of manifest utility or showing some improvement in their adaptation for use in coal mines.

Exhibitors in groups 1, 2, 3, and 4 will be able to show the working of their appliances, on previous application being made to the committee, and for this purpose two steam generators will be provided on the grounds, as follows:

One boiler with high-pressure jackets and 55 square meters of heating surface, with a furnace of 1.55 meters* wide by 1.2 meters long.

One multitubular Babcock & Wilcox boiler of 91.44 square meters of heating surface, with a furnace 1.168 meters wide by 1.549 meters long.

There will be also electric motive power for the use of the automatic grates.

Those exhibits of group 5 which, in the opinion of the committee, are in a position to be set in motion may also be practically tested, on application being made to the committee in proper time.

The experiments will be made before a jury of experts.

The exhibitors will defray all the expenses of transport to and from the exposition, cost of trials, use of the steam, and the wages of the men employed at the said trials.

The expenses connected with the trials of those appliances that the jury may select for the sake of comparison or for other reasons, and which are not made at the request of the exhibitor, will be defrayed by the Diputacion Provincial.

The site allotted by the committee for the exhibits will not be charged for. The exhibitor or his representative may personally superintend the trials of his exhibit before the jury on the day fixed for that purpose, and may also appoint his own workmen to carry out those trials, but always under the supervision of the jury.

The jury will make a report on each trial made, which will be included in the general report on the exposition that will be published after its close, and each exhibitor may, if he wishes, obtain from the jury a certificate of the result of the trial made with his exhibit.

The jury will award prizes and honorable mention to those exhibitors they may consider worthy of the distinction, in view of the result of the practical trials made.

Foreign exhibitors are informed that, in accordance with Spanish customs regulations now in force, exhibits from abroad are not liable to any duty on entry when intended for the exposition; but if not reexported within three months after the close of the exposition, they will be charged duty as if they had been imported for use.

In order to enjoy this privilege, the exhibitor must consign the goods to the Excelentísimo Presidente de la Diputacion Provincial, stating that they are intended for the exposition of native coal being held at Barcelona, so that the necessary custom-house documents may be obtained by the agent named for that purpose—D. Enrique Nello Camps, Porticos de Xifre, 12, Barcelona. A detailed list giving

*1 meter = 39.37 inches.

the number of packages sent, description of contents, marks, numbers, gross weight of each, and the specification of the kind, quality, and material of the goods should be forwarded in due time to the president of the Diputacion Provincial or to the above-named agent.

The bill of lading or railway receipt, with freight prepaid to Barcelona and consigned as aforementioned to the president of the Diputacion Provincial, must also be sent, and the name and address of the person or corporation representing the exhibitor stated.

The cost of clearing the goods through the custom-house on arrival and on reshipment will be on account of the exhibitor.

Those goods intended for the exposition which, after being passed through the custom-house, are not taken charge of by their owner or his representative, will not figure in the exposition.

The exposition will be opened on June 2 next and will be closed on the 29th of the following September.

MARKET FOR SOAP IN SPAIN.

The manufacture of soap in Spain has greatly increased during late years, the large exports to Cuba having fostered this industry and enabled it to acquire an importance that but for that outlet it would never have reached, considering that only an insignificant proportion of the exports found a sale in foreign markets. Especially was this the case before the loss of the colonies; for in the year 1897, Spain sent 7,045 tons to her dependencies and only 112 tons to other countries. The total exports during 1900 amounted to over 6,107 tons, while those for the two months ended February 28, 1901, reached 1,792 tons.

In the province of Barcelona alone, there are over one hundred soap factories, including the extensive works of the firm of Rocamora Hermanos, which are among the largest soap factories of Europe. Their soap is manufactured almost exclusively for export, Cuba being the best market.

The olein used is produced in their own stearin factory. This is mixed with resin, which is one of the few articles allowed to enter free of customs duty when intended for reexportation. Large quantities of beef tallow are imported from the River Plata, and mutton tallow from Australia.

Cocoonut oil also forms one of the principal component parts of the soap made here, the cocoanuts or copra being brought from the Pacific islands and crushed at the oil mills here. Vegetable oils were formerly imported, but, owing to the high protective duties now levied on them, the principal French firm in the Spanish trade found it necessary to cross the frontier and erect a mill here in order to compete with the local oil crushers.

Common olive oil and oil extracted from the pulp left after the

first crushing of the olives also enter into the manufacture of soap, and these are naturally obtained at little cost in this country.

Caustic soda of 60° strength is imported from England; the present price is 23.65 francs per 100 kilograms (\$4.56 per 220 pounds) c. i. f. Barcelona.

The price at which the common yellow soap is sold for export is equal to about $3\frac{1}{2}$ cents per pound, delivered free on board at Barcelona.

JULIUS G. LAY,
Consul-General.

BARCELONA, *April 15, 1901.*

SPAIN'S WHEAT IMPORTS IN 1900.

Consul Bartleman sends from Valencia, April 10, 1901, translation from Exportacion Valenciana y Murciana, of the 8th instant, with reference to the importations of wheat into Spain in 1900, as follows:

IMPORTATIONS OF WHEAT INTO SPAIN IN 1900.

Spain, which should be one of the first wheat-growing countries of the world, imported during the year 1900 about 213,550 tons of wheat. The importance of these figures is accentuated by the fact that this country has the lowest average population in Europe, and that, in several extensive districts, wheat bread is never eaten. The importation by ports was as follows:

Port.	Quantity.	Per cent.
	<i>Tons.</i>	
Barcelona.....	139,245	65.25
Valencia.....	37,875	17.37
Tarragona.....	20,612	9.39
Vinaroz.....	2,097	0.93
Alicante.....	1,797	0.47
Airles.....	2,622	1.24
Pasajes.....	1,818	0.84
Bilbao.....	1,700	0.79
Gijon.....	1,613	0.75
Cadiz.....	2,451	0.92
Malaga.....	848	0.37
Cartagena.....	463	0.18

Résumé by districts.

	Per cent.
Cataluña.....	72.64
Kingdom of Valencia.....	18.79
North of Spain.....	3.83
Other ports.....	1.90

The total value of the wheat imported was 50,000,000 pesetas [about \$7,000,000 in United States gold].

INDUSTRIAL PROGRESS IN HUNGARY.

Hungary is generally regarded as distinctively an agricultural country, and such it has been; but its industrial complexion is changing. For the past decade, strenuous and successful efforts have been put forth to establish factories, with the ultimate commercial independence of Hungary as the object. There is a possibility of the revocation of the *Ausgleich*, under whose terms the products of Austria and of Hungary are mutually interchanged free of import duties. Hungary favors the imposition of duties upon the products of Austria, as well as of other countries, as soon as she shall have initiated sufficient manufacturing enterprises to insure some degree of industrial independence for herself.

In the last eight years, 356 new industrial establishments were opened in Hungary. The number instituted in each year was as follows:

Year.	Num-ber.	Year.	Num-ber.
1893	52	1897	31
1894	47	1898	42
1895	67	1899	38
1896	31	1900	48

The aggregate capital employed is 259,308,408 crowns (\$52,639,606), the average exceeding \$132,000 for each concern.

Nearly all these new enterprises have received Government aid. The ministerial mandate, far-reaching and liberal in scope, issued to carry into effect the law authorizing State aid to manufacturing industries, began operation last year and has already proved a great stimulant to activity in the line of establishing new factories. Those subsidized are of every conceivable class—clothing, furniture, paper goods, chemical articles, machinery, and so on.

The Hungarian Ministry of Commerce is now negotiating with reference to 68 additional new factories, with a proposed aggregate capital of 41,000,000 crowns (\$8,323,000), to give employment to 8,700 persons. Among these are some large flax and cotton spinning mills.

FRANK W. MAHIN,
Consul.

REICHENBERG, *March 29, 1901.*

COAL SITUATION IN HUNGARY.

The coal question has become more important for Hungary than the problem of her industrial development. While England and Germany produce good coal and the latter consumes almost all it produces, Austria produced in 1898 about 32,200,000 tons and exported 1,333,000 tons to Hungary. Hungary produced in 1899 only 5,200,000 tons and had to import from Austria, as aforesaid, over 1,000,000 tons. As this import just covers the decrease in production from 1898, it is important that our American exporters should not be deterred from their efforts by reports* of the decrease of Hungary's import. The decrease in 1900 took place in stone coal only, while the import since January 1, 1901, from Austria and Germany has increased, from Great Britain it is five times as great, and there was an import from Italy of 395 tons. In December, 1900, there was an import of 986 tons of stone coal from Asiatic Turkey and 24 tons only from the United States—signs that the American exporters need to get into more direct connection with Hungarian importers.

There is at present no duty on coal in Austria-Hungary. The principal consumers are the State railroad and the numerous distilleries. The production of stone coal in Hungary is entirely in private hands. A feeble attempt is now being made to float new shares of the largest coal concern of Hungary on the local market; but only some 25 per cent of the whole coal production of Hungary is stone coal, and the approaching changes in international commerce are not favorable to the rapid success of new mining schemes in Hungary. More than half the stone coal imported by Hungary has hitherto come from Austria, yet the trade of both countries from the beginning in this article has always been in favor of the competing outside world. The United States has only to step in and win the market.

FRANK DYER CHESTER,

BUDAPEST, *April 21, 1901.*

Consul.

COAL IN GERMANY.

The North German Lloyd, at Bremen, and the English Gas Company, at Berlin, have placed large contracts for coal in England, and as a result German mining shares have been somewhat affected. This step has caused surprise and regret in commercial circles here, as it is a well-known fact that German coal companies,

* See ADVANCE SHEETS No. 644 (January 25, 1901); CONSULAR REPORTS No. 246 (March, 1901).

particularly the Rhenish-Westphalian coal syndicate, have a large supply of coal on hand. This stock, it is said, amounts to several hundred thousand tons. As neither the North German Lloyd nor the English Gas Company would have purchased coal abroad could it have been procured in Germany at equally favorable terms, it is evident that German coal dealers have not reduced their rates to the level of their English competitors. Neither private mines nor those belonging to the State are willing to moderate prices, which are the same as when the scarcity of coal was most severely felt; this, too, in spite of the fact that all kinds of merchandise have been so low as to cause serious apprehension.

In view of these conditions, it appears to me that the present is an excellent chance for United States mine owners to gain a firm foothold in the German coal market. Quick and judicious action would result in profitable trade. German manufacturers will welcome the invasion with open arms.

O. J. D. HUGHES,

COBURG, *April 19, 1901.*

Consul.

AMERICAN VS. WELSH COAL.

Consul Caughy, of Messina, says that Messrs. Peirce & Becker, of that city, recently received an inquiry from England as to the quality of Pocahontas coal. The English company, the letter stated, noted that the Messina firm had been discharging a cargo of this coal and asked a candid opinion as to how it compared with Welsh. The answer reads, in part:

We are not prepared to state what percentage of small a cargo of Pocahontas will show after discharging, but it will be perceptibly greater than in the case of a cargo of good screened Welsh coal. But the small of Pocahontas is more serviceable than that of Welsh coal, excepting, perhaps, the limited number of first-class brands of Welsh small, although we are not even sure about this, as Pocahontas small cakes wonderfully well and is very clean.

We have been using Pocahontas for years for our own steamers, which, we should add, have Howden's forced draft, and consequently fire bars rather close together.

We should call it, taking it all around, fully equal to the very best Cardiff coal that we have ever had the opportunity of using, and we would say that on several occasions we have specially laid ourselves out to get the very best Cardiff coal, without sticking at the price, as we are convinced that the best coal is the cheapest in the long run. But we have found Welsh coal to vary considerably, the price and the brand being an unreliable guaranty as to quality and results; while Pocahontas coal, although it is only run of mine and not screened, is constant and practically always the same quality.

For our part, we consider it to be, on the whole, a stronger and cleaner coal than such Welsh, even of the highest-priced brands, as is accessible to the general public.

INTERNATIONAL LABOR BUREAU IN SWITZERLAND.

On the 1st day of May, the International Labor Office will begin its work in Basel, in the same country where the central office of the Red Cross Society, the International Telegraph Bureau, the Bureau for the Regulation of International Freight Tariffs, the Latin Monetary Union, and the International Postal Union are already in operation.

Most of the institutions above mentioned are the real organs of the associated governments of the world, some of them, especially the Red Cross Society and the Universal Postal Union, embracing all the civilized nations of the four quarters of the globe.

The International Labor Office will apparently have at first a less pronouncedly official character than the bureaus already in existence; but the following account of its origin and purpose, compiled from a report of its director, Prof. Stephen Bauer, of the University of Basel, formerly professor of political economy in the University of Chicago, will show that its scope is distinctly international and that it is already recognized by several governments. It is the partial realization of plans that have long been the subject of discussion, sometimes between the governments of European nations and sometimes between private representatives of their people.

One of the first suggestions in this direction was made as long ago as 1876, by Col. Emil Frey, a Swiss statesman, known in America as a volunteer in our civil war, afterwards as Swiss minister in Washington, and finally as President of the Swiss Republic. He suggested that international conventions establish uniform conditions of labor in all industrial communities, since the danger resulting from foreign competition is a great obstacle in the way of isolated social reform. But when, five years later, the Swiss National Council unanimously voted to begin negotiations with other countries for this purpose, the answers were all unfavorable.

The idea did not cease to make progress, however. It was a second time recommended in 1898, and in 1899 the German Emperor called an international conference at Berlin. Here, all the propositions in regard to regulating hours of labor, the work of women and children, and Sunday labor were rejected by the delegates of the different countries.

In 1897, Switzerland again took up the question, and the answers, though not so distinctly adverse as on the first occasion, were again

unfavorable. Only four states gave the scheme some platonic support.

The workingmen, however, did not abandon the idea of an international understanding. The Swiss Workingmen's Society called an international congress at Zurich in September, 1897, to which they invited as guests government labor officials, factory inspectors, and economists, and it was here that the project of an international labor bureau of a semiprivate character took definite form.

A congress held soon afterwards at Brussels appointed a committee to make proposals for carrying out the plan. To this committee and to the parallel action of a meeting at Berlin in 1899 is due the foundation of the International Union for the Legal Protection of Workingmen. This association is designed to organize the efforts for social reform in every country, as well as to serve as a financial basis for an international labor office. The committees which pursued this aim met at the international congress for the protection of workingmen which was held at Paris in July, 1900, where the statutes of the new organization were approved.

The Swiss National Council, on motion of the Government Council, has voted an annual contribution of 8,000 francs (\$1,544) toward the foundation of the International Labor Office and 1,000 francs to the Swiss section. Two other governments are disposed to assist the office in a similar way.

Prof. Bauer, of the University of Basel, has been intrusted with the direction of the international office, which is situated in a public building, Clarahof, Rebgeasse 1.

According to the statutes, the International Labor Office will have to fulfill the following duties:

(a) *Publications.*—It will publish, first, a code of existing labor laws in the English, French, and German languages; second, an international bulletin; and third, an international annual of labor.

The international code will contain the texts, as well as the motives and the interpretation, of the existing legislation. The International Labor Office hopes to enjoy the cooperation of experts of every country for this scientific work, who will be appointed as correspondents. The work of translation will be done by the office itself. The bulletin will contain current legislative and administrative matter; extracts from parliamentary debates and from reports of commissions of inquiry concerning social reform; a survey of strikes and lockouts; a bibliography of official documents concerning labor legislation. The annual will contain the annual report of the association, the proceedings of the congress for labor protection, and the current supplement of the international code.

(b) *Service of information.*—Governments, industrial and labor organizations, as well as private members of the association, will receive information concerning texts and motives of foreign labor legislation. This branch of the International Labor Office is already in full activity. The office, in order to fulfill this mission, relies on the liberality of governments, which, by sending their labor laws and furnishing information through official authorities, can do much to improve the service of information.

(c) *Development of labor legislation.*—It is not proposed to aim at a mechanical uniformity of labor legislation, which must adapt itself to differences of national character and administration in the various industrial countries. Labor legislation will be promoted by the International Labor Office, first, by finding the most adequate technical formulation of the regulations concerning certain protective purposes (*e. g.*, the formulation of the periods of rest); second, by inquiring into industrial efficiency, as far as it is affected by labor laws (*e. g.*, shortening the hours of labor); third, by establishing a statistical standard measure for the degree in which social politics makes itself felt in each country.

The International Labor Office will be able, by means of its correspondents, to form an opinion in regard to questions of juridical, hygienic, and technical importance which arise in legislating about labor. Committees consisting of manufacturers, workmen, and economic experts will be convoked by each section and will report to the office on questions of industrial efficiency. The director of the office will request the inspectors of factories and directors of labor departments to give information on these points. If these documents should not be considered sufficient, international statistical investigations will be set on foot. The whole material will be compiled for the congress by the director of the office.

(d) *The annual congress* will be convoked by forwarding the whole papers to the sections and members of the association.

The first meeting of the association will take place on the 27th and 28th of September, 1901, in Basel; its main purpose will be to permanently constitute the association. In the meantime, national sections will try to promote interest for social reform in their respective countries.

GEO. GIFFORD,

Consul.

BASEL, April 15, 1901.

SCHOOL GARDENS IN SWEDEN.

The largest nursery in Sweden is the so-called experiment ground near Stockholm, belonging to the Royal Academy of Agriculture. There are many others, however, in the southern and central provinces; also in the northern part of the Kingdom, as far north, indeed, as Luleå (nearly 66° north latitude). The methods employed in propagating trees and shrubbery are the same as in other countries.

The process of development which gardening in Sweden has undergone of late years is to be attributed in a large measure to the encouraging example of a number of large estate owners, and to the interest taken in the subject by the Government, agricultural societies, and private associations.

Besides the two important botanical gardens at Upsala and Lund, which are more especially intended for academic tuition, there are the experiment grounds of the Royal Academy of Agriculture, where many park and fruit trees and ornamental shrubs are raised.

The school for gardeners at the experiment grounds of the Royal Academy of Agriculture and the school of the Swedish Horticultural Society are the chief educational institutions relating to agriculture in the Kingdom. Instruction in gardening is also imparted at the Bergius Gardens, near Stockholm; at the agricultural high schools of Ultuna and Alnarp; and at the schools of agriculture distributed over the whole Kingdom—all these institutions being under the control of the Royal Academy of Agriculture.

The firmest basis for this branch of culture lies, however, in its being made a subject of national education. Gardening is taught at the seminaries for national school teachers and at the national schools in the Kingdom. School gardens have been established. The different parishes must grant the necessary ground for these gardens, which contain the usual culinary herbs, a few medical plants, an arboretum, etc. The children are taught the best methods of gardening, and each year they receive trees and shrubs to plant at their own homes.

The agricultural societies employ so-called "master gardeners of the province," who aid the public with advice and information. Horticultural societies, to the number of about twenty, spread all over the Kingdom, and are active in promoting exhibits, printing and distributing publications, imparting instruction, and supplying plants and seed.

I give herewith a list of the different school districts, with their respective school gardens, and in conclusion would add that there are no available statistics showing the growth of this system:

District.	Number.	District.	Number.
Hagunda, etc.....	71	Kinna:	
Westra Roslag.....	14	For children.....	57
Gestråkländ.....	50	For teachers.....	129
Helsinglând.....	24	Asby.....	115
Norrköping:		Torna.....	79
For children.....	27	Göteborg.....	48
For teachers.....	36	Stranda:	
Gullbergs.....	42	For children.....	12
Bergslags.....	35	For teachers.....	18
Wänga.....	101	Ångermanlând.....	3
Våne.....	23	Ölând.....	17
Willallinge.....	158	Kils.....	72
Örebro.....	45	Westernorrland.....	14
Munktorp.....	82	Jerntlând.....	4
Norrbärke.....	37	Gellivare.....	43
Kinneval.....	9	Visby.....	33

AXEL GEORGH,

*Vice-Consul-General.*STOCKHOLM, *March 26, 1901.***REPORT FROM GOTHENBURG.**

There are in Sweden several gardening schools, the more prominent being "Svenska Trädgårdsföreningens Trädgårdsskola," Rosendal, Stockholm; "Bergianska Trädgårdsskolan," Bergielund, Albano; "Ädö och Säbyholms Trädgårdsskola," Ädö, Bro; "Kongl. Landbruks-Akademiens Trädgårdsskola," Experimentalfältet, Albano; and "Alnarps Trädgårdsskola," Alnarp, Åkarp.

After the Swedish Horticultural Society had for about four years carried on exclusively practical or mechanical experiments in Stockholm, the society in 1842 established a gardening school. In 1846, the State granted the school a yearly allowance of 2,000 kronors (\$536), which allowance in 1858 was increased to 4,000 kronors (\$1,072), and in 1860 to 4,500 kronors (\$1,206), but was subsequently reduced to \$1,072 per year. In 1862, the school was moved to Rosendal, where it still is located. The instruction, both theoretical and practical, is under the supervision of the trustees of the Swedish Horticultural Society, which has a garden near the Rosendal Castle, from which different plants are sold. The students live at the school and receive free lodgings, light, fuel, and medical attendance—also the most necessary books—and receive the first year 12 kronors (\$3.22) and the second year 20 kronors (\$5.36) per month. The instruction in this school embraces:

(a) Elementary courses: Writing, arithmetic, geometry, surveying and leveling, and botany.

(b) Special or practical courses: Science of cultivation in general; instruction as to the influence of soil, water, heat, light, and air on

plant life; special plant culture; care of hotbeds, care and pruning of fruit trees and berries, and pomology; floriculture and raising of plants for parks; care of plants in greenhouses, planning of gardens, and drawing pertaining to gardening; construction of greenhouses, etc.; besides this, the students have to write essays on the subjects stated.

(c) Mechanics: Simple woodwork, painting, and bricklaying.

There are about twenty-five students in this school, and three permanent and two extra teachers. In order to be admitted, the applicants need not possess any other education than that received in the common public school.

The Bergius Gardening School was established about 1770 by Prof. P. J. Bergius, and was donated to the Royal Academy of Sciences, to which it still belongs. There are five teachers, and the instruction is about the same as at Rosendal. The number of students is ten; no public examinations are held.

The Ädö and Säbyholm Gardening School has been recently established. It is a private institution, and I have not received any data concerning it.

The gardening school at the agricultural experiment station Albano, belonging to the Royal Agricultural Academy, was established in 1817, although theoretical tuition was not started until 1832. In the year 1900, the functions of the school were extended for the purpose of furnishing the students a more complete course of instruction. This is now supplied by eight teachers, and includes the following subjects: Plant nursing, fruit raising, and pomology; floriculture and raising of vegetables, planting of gardens, construction of greenhouses, surveying and leveling; botany, entomology; agricultural chemistry, instruction about soils and fertilizers, arithmetic and geometry, the Swedish and German languages, and drawing. It is a two years' course, lasting each year from the 1st of April to the 31st of October, during which time the students receive free instruction, lodgings, lighting, fuel, medical attendance, and medicine, and the first year 40 cents for each working-day and the second year 47 cents per day. There are thirty students, half of whom leave the school yearly after having gone through the two years' course.

At the Alnarp Agricultural Institute, in the province of Skåne, there has been established since 1876 a school for young men who intend to become gardeners. The students receive free lodgings and fuel and the first year \$2.68 and the second year \$4.02 per month. They must themselves provide food, lights, and books. Only public-school education is required for admittance. The school receives yearly from "Malmöhus Läns Hushållningssällskap" (the Agricul-

tural Society of Malmöhus County) a sum of about \$536. Six students leave every year; the course lasts two years, and there are usually twelve students, but sometimes fourteen to sixteen. Public examinations are held at the school, which is under the supervision of the trustees of the Agricultural Institute. The theoretical instruction, given by seven teachers, takes place during the winter months, with one morning hour and one or two evening hours. This part of the course embraces:

(a) Elementary subjects: Chemistry, geology, physics, arithmetic, writing, and botany.

(b) Special subjects: Raising of fruit trees on cold soil and under glass, pomology, raising of flowers on cold soil and in hothouses, and dendrology.

(c) Practical experiments: Surveying and leveling, garden drawing, and architecture. In the garden, the students take part in all the work. The elder students have a two months' vacation during the second winter, for theoretical studies.

Young men studying to become teachers in the public board schools (in which classes the children are from 10 to 15 years of age) are informed in gardening, and when teachers they are enjoined to instruct the school children in gardening and raising of fruit trees. The general board school regulations prescribe that there shall be a garden at every schoolhouse where it is possible to obtain suitable land for the purpose. As a result, there is a school garden in nearly every rural school district in Sweden, but not in the cities.

In every county, at least in the southern part of the country, there is a "Hushållningssällskap"—that is, a society for the promotion of horticulture and agriculture in general. Every society employs a "county gardener," who, to a certain extent, provides young fruit trees free of charge and plants them for the farmers and crofters who apply for trees. Prizes or medals are also given to farmers or crofters who in a marked degree have improved their land by planting trees or otherwise.

ROBERT S. S. BERGH,

GOTHENBURG, *April 11, 1901.*

Consul.

ELECTRIC RAILWAYS IN GERMANY.*

Statistics published by the Electro-Technical Journal show that on September 1, 1900, 99 German cities had electric railways; it is estimated that on January 1, 1901, 107 cities were so supplied. In 1891, the number of such cities was 3; in 1895, 32; in 1899, 88. The last year has also witnessed a very large extension of existing

* A report covering the same subject has been received from Consul Hughes, of Coburg.

systems. On September 1, 1900, the length of track was 1,793 miles, against 1,280 miles in 1899. The number of motor cars was 5,994 (4,504 in 1899) and of attached cars 3,962 (3,138 in 1899). The aggregate power of the electrical machines was 75,608 kilowatts, against 52,509 kilowatts in 1899. The power of the accumulators was 16,890 kilowatts (13,532 in 1899). The system of overhead conduit is used almost universally. The combined system of overhead conduits and accumulators has not been satisfactory. Three cities—Berlin, Dresden, and Düsseldorf—have short lines with underground conduits (2.1 miles in all). Only three lines use accumulators exclusively.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *April 3, 1901.*

ELECTRIC RAILWAYS IN SAXONY.

The statistics compiled by the royal bureau of electric railways concerning the traffic of the Saxon electric roads during 1900 give a very comprehensive survey. According to these returns, the traffic has increased very considerably over that of last year, as a consequence of the opening of many new lines in the larger cities. About the 1st of October, 1900, a new company called "Die Leipziger-Aussenbahn-Actiengesellschaft" (Leipzig Suburban Railroad Company) opened up one of its first lines to the public. The figures given below show the extension in the facilities for carrying the public:

Name of line.	Length of line.	Persons carried.	Motor cars.	Trailers.
	<i>Miles.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>
Dresdner Strassenbahn.....	32.11	42,577,615	262	106
Deutsche Strassenbahngesellschaft Dresden.....	26.87	22,744,292	190	46
Grosse Leipziger Strassenbahn.....	33.52	44,446,513	240	100
Leipziger Electriche Strassenbahn.....	31.75	18,916,823	130	50
Allgemeine Local Strassenbahngesellschaft Chemnitz.....	17.27	12,042,439	110	71
Zwickauer Strassenbahn Actiengesellschaft.....	6.74	2,252,425	29	8
Sächsische Strassenbahngesellschaft Plauen.....	2.92	400,604	15	.....
Schandauer Electriche Strassenbahn.....	4.98	119,834	6	6
Lössnitzbahn.....	4.33	1,518,112	25	10
Meissner Strassenbahn.....	2.70	978,699	8	5
Dresdner Vorortbahnen.....	2.18	294,342	4	1
Leipziger Aussenbahn Actiengesellschaft.....	1.13	12,443	(*)	.....
Total for 1900.....	166.59	147,645,690	1,028	403
Total for 1899.....	137.54	113,592,390	731	289

* Not given.

The number of persons injured has increased in proportion to the increase in traffic. The serious and fatal accidents, which are included under one head, have increased from 0.61 to 0.69 for each million persons carried. Naturally, most of the accidents were the fault of the injured themselves, especially in case of persons jumping on and off cars while in motion. The number of such accidents in 1899 was 38, against 92 in 1900. Many women in this country not only insist upon riding upon the front and rear platforms, but in getting on and off cars while in motion.

Other lines will be built and extended in Saxony during the present year, and, as a consequence, large supplies of steel rails and road equipments will have to be purchased.

BRAINARD H. WARNER, Jr.,

LEIPZIG, *April 2, 1901.*

Consul.

NEW RAILWAY BRAKE IN BELGIUM.

The department in charge of the Belgian Government railways, as well as the independent companies of this and adjoining countries, contemplate the general improvement of train service. They propose to change the compartment to vestibule cars as soon as possible and to have them heated according to the most approved methods. Much attention is to be given to the speed and regularity of the train service. I translate the following from the *Journal de Bruxelles*:

Experiments are being made with a new brake for railway trains, which would reduce the running time more than one-third at a speed of 80 kilometers (49.7 miles) per hour.

It is known as the Luyers system, and consists principally in a friction pulley fastened to the axle, on which the shoes act, permitting a quick stop with remarkable smoothness.

Satisfactory trials were made last year with a car on the Ghent-Terneuzen Railway Company's lines, and the Minister of Railways authorized the placing of friction pulleys on ten 15-ton cars provided with Westinghouse brakes, to serve as the final test. This took place at Setzaete, in the presence of engineers representing the principal railway companies of France, Germany, the Netherlands, and Spain.

The result was favorable at all rates of speed. With the tire brake now in use, a train at a speed of 81 kilometers (50.3 miles) per hour may be stopped within 290 meters (990 feet) in twenty-five seconds, while the Luyers brake can stop a train at the same speed in a distance of only 171 meters (438 feet) under the same conditions of adhesion and pressure, and in less than sixteen seconds.

ALFRED A. WINSLOW,

LIEGE, *March 30, 1901*

Consul.

MILEAGE OF EUROPEAN RAILWAYS.

The European press publishes the following statistics, taken from a late statement by the Minister of Public Works of France, covering the railway mileage of European countries at the end of 1899:

Country.	Mileage.	Mileage added in 1899.
	<i>Miles.</i>	<i>Miles.</i>
Germany	34,069	6,000
Russia	28,745	2,164
France	26,382	317
Austria-Hungary	22,670	726
Great Britain	21,700	125
Italy	9,827	5
Spain	8,301	145
Sweden	6,702	310
Belgium	3,871	66
Switzerland	2,355	38
Roumania	1,932	25
Turkey, Bulgaria, and Rumelia	1,912	.....
Denmark	1,775	150
Holland	1,715	9
Portugal	1,470	.....
Norway	1,240	.....
Greece	605	12½
Servia	360	5

It will be noted that of the 10,097½ miles of railway building in Europe in 1899, bringing the total of existing railway track up to 175,821 miles, 8,164 miles were built in Germany and Russia, a fact of great importance to American suppliers of such material.

So far as the Netherlands are concerned, no considerable extension of the railway system is in view; but a large field will presently be open, in the opinion of competent authority, in the substitution of electricity for steam in the net of tramways, as well as in the canals.

FRANK D. HILL,

AMSTERDAM, *March 25, 1901.*

Consul.

PROGRESS OF SIMPLON TUNNEL.

I give below translation, in part, of a report of the Federal Council on the construction of the tunnel through the Simplon in 1900:

At both extremities of the tunnel, the installations have been completed. The permanent ventilation system has been placed at the southern end, but at the northern extremity the building which is in course of erection for that purpose is

not yet finished. However, in case of failure of the water power, the ventilation is assured by special machinery for use in case of emergencies.

The progress of the work in the tunnel itself has been regular and has kept pace with the contract. The result showed as follows on the 31st of December, 1900:

Tunnel.	Brigue.		Isella.		Total.	
	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.
Tunnel No. I.....	4,119	13,510	3,148	10,325	7,267	23,835
Tunnel No. II.....	4,084	13,395	3,150	10,332	7,234	23,727
Complete excavating, No. I.....	3,252	10,667	2,350	7,708	5,602	18,375
Complete covering, No. I.....	2,873	9,423	2,020	6,626	4,893	16,049

The advance during 1900 in Tunnel I amounts to 3,401 meters (11,155 feet), which means for three hundred and sixty days of work an average of 9.44 meters (30.9 feet) per diem, against 3,457 meters (11,339 feet), or 9.6 meters (31.4 feet) per diem in 1899.

The average number of workmen in a day, in December, 1900, was:

Description.	Brigue	Isella.	Total.
About the tunnel.....	542	710	1,252
In the tunnel.....	1,439	1,224	2,663
Total.....	1,981	1,934	3,915

The expenditure for construction of the tunnel, including the lines of access—i. e., for the track Brigue-Isella—amounted in round numbers to 7,600,000 francs (\$1,466,800) for the first year (ended September 30, 1899) and to 18,000,000 francs (\$3,474,000) for the second year (ended September 30, 1900).

HORACE LEE WASHINGTON,

GENEVA, April 19, 1901.

Consul.

PRODUCTION AND CONSUMPTION OF COPPER IN GERMANY.

The recent decline in the price of copper to £69 (\$335.78) per ton in the controlling market of England, together with the fact that the total European imports of that metal averaged only 18,091 tons per month during January, February, and March, 1901, against 23,600 tons per month from April 1 to December 31, 1900, have been widely discussed as indications of the restricted activity which now prevails in electrical and certain other branches of manufacture throughout Great Britain, France, and Germany. That this lull is but temporary and due largely to the paralysis of export trade incident to the wars in South Africa and Asia, is generally believed. Meanwhile, the slight decline in the price of copper brings that metal into closer harmony with the current values of steel and iron, and has already acted as a stimulant to consumers, who are counting

on the steadily increasing production of North America to maintain the future price of copper at or even below its present value. However this may turn out, the present situation is one of unusual interest. From the German standpoint, the outlook appears to be substantially as follows:

Although complete statistics for the year 1900 are not yet at hand, it is closely estimated that out of a world's product of about 470,866 tons, North America yielded 268,787 tons; England, 520 tons; Austria-Hungary, 1,130 tons; Russia, 6,000 tons; Chile, 25,700 tons; Germany, 31,950 tons; and Japan, 27,500 tons—the remainder coming mainly from Australia, Tasmania, and Spain. According to these figures, which are expert estimates by high commercial authorities, the production of Russia declined 500 tons and that of Germany 5,726 tons as compared with those of the last preceding year.

In estimating the probable demand for copper in Germany, it will be interesting to consider the various uses to which that metal is principally applied and the present condition and outlook of the industries in which it serves as a leading material.

Besides the native supply, Germany imported last year 83,502.6 metric tons of raw copper, against 70,091.4 tons in 1899. Of this import in 1900, 66,264 tons came from the United States. Deducting from the sum of native and imported copper the 8,756 tons exported from Germany to neighboring countries, it is found that the actual German consumption of last year was about 106,696 tons, as compared with 19,622 tons in 1880 and about 48,000 tons in 1890. Of the whole amount consumed in this country last year, it is estimated that 40,000 tons were used in making electrical conductors and machinery, 20,000 tons were rolled into sheets and rods, 35,000 tons were made into brass and bronze, 3,000 tons were used in chemical manufacture (including vitriol), 20,000 tons for ship construction, boiler tubes, fire boxes, etc., and the remainder was made into coins, castings, bronze powder, builders' hardware, gas and electric lighting fixtures, and into various alloys with other metals.

For all these purposes except electrical manufacture, it is thought probable that the consumption of copper in Germany will not seriously decrease during the present year. How much will be used for electrical purposes is a point upon which opinions differ. Although certain branches of the industry—for instance, the construction of lighting plants—are less active than a year ago, all the great makers of generators, motors, cables, and wire are working at full time, and the extension of electric-tramway lines is active and general in England and most continental countries. A trade circular issued by Messrs. Aron, Hirsch & Son, a leading copper firm at Halberstadt,

shows that during the six years from January 1, 1895, to the end of 1900, the increased consumption of copper in Germany, Great Britain, France, and North America averaged 49 per cent, while the increased world's production during the same period was only 43 per cent; and it is stated by the same authority that the total reserve stock of raw copper, instead of increasing, has diminished by 63,021 tons during the past six years.

Shipbuilding, locomotive and railway-car manufacture, telephone and electric-railway construction—all, in fact, that concerns transportation and communication—are still in general activity throughout Europe, and from all these circumstances interested experts deduce the belief that whatever may be the fate of iron and steel under the new conditions of demand and organized production, the copper market is not threatened with any immediate or serious collapse. That this judgment has caused disappointment in certain quarters is but natural. Most consumers of copper insist that the present price of that metal is artificially maintained, that it is still out of due proportion to the market values of other metals, and claim that a reduction to 14 cents per pound would not only be a saving boon to electrical manufacturing industries, but would increase by a large percentage the employment of copper for many purposes from which it is now excluded.

FRANK H. MASON,
Consul-General.

BERLIN, *April 10, 1901.*

WORKING OF THE GERMAN LAW TAXING DEPARTMENT STORES.

When in June last the Prussian Diet, after long debate and serious consideration, enacted the now famous statute for the special taxation of department stores (reported June 21 and published in *ADVANCE SHEETS* No. 781, July 16, 1900*), there was a general prediction among the opponents of that measure that its enforcement, which was to begin with the year 1901, would develop some results which the friends of the law and the Finance Minister of Prussia, who had consented to its enactment, did not foresee.

The result seems to have fulfilled these predictions. By the terms of the statute, owners of department stores had six months in which to prepare for submission to its requirements. This period they utilized by making new contracts with manufacturers of various classes of merchandise in which, as it is credibly reported, they secured discounts and additional concessions which will offset

*Also in *CONSULAR REPORTS* No. 249 (September, 1900).

the added taxes which they now have to pay on their aggregate turnover. It happened that the last six months of 1900 was an unusually propitious time for such negotiations. The long period of intense activity in most lines had apparently passed its zenith; the time of reaction and declining demand had begun. Manufacturers were flush with the earnings of previous years; their productive capacity was expanded to the fullest limit; they were able and willing to make large contracts at prices which, although they might yield little or no profit, would enable them to keep their factories going and their operatives employed until the momentary cloud of depression should blow over. And so the department-store managers—merchants of high ability, having at their command large resources—used the plea of special taxation with potent effect and purchased their stocks for the coming year under conditions which have gone far to neutralize the effect of the new impost, so far as the trade of 1901 is concerned.

But this is not all or the worst that has happened. It will be remembered that under the law of June last, all ordinary articles of trade are divided into four groups, or categories, and it provides that every store, bazaar, or warehouse which shall sell articles belonging to more than one of the designated groups, and shall make sales aggregating more than 400,000 marks (\$95,000) in a year, shall be subject to the progressive tax, which increases rapidly with the total amount of annual sales.

The law was framed and enacted as a measure of justice and protection to the middle-class merchants, who, after long years of patient effort, have recently found themselves overshadowed and undersold by the great bazaars, which buy their supplies at every advantage and sell everything needed in an ordinary household, from canned fruit to a bridal trousseau, at prices with which the smaller merchant can not compete. But it is now found that the new law strikes a great many firms of the middle class, for whose special protection it was enacted. This is because many of these firms who do a yearly business far exceeding the taxable limit sell articles which under the law are grouped in separate categories. As an example which will illustrate hundreds of similar cases, there is a leading manufacturer of lamps and lighting apparatus who makes a specialty of high-class petroleum lamps for libraries and drawing-rooms. In order to secure the success of its lamps, the firm rigged up a specially constructed fireproof cellar as a depot for the best grade of petroleum, which was sold under rigid police regulations and distributed through the city by uniformed employees with handsomely painted wagons and all the paraphernalia of a select and exclusive trade. But petroleum and lamps are in separate groups

under the law of June, 1900; so that the house in question has been forced to close out and discontinue its oil department or to submit its whole output of lamps, as well as gas and electric lighting fixtures, to the special tax, which would amount to about 5 per cent of its yearly turnover.

Another acute case is that of the Hohenzollern Kaufhaus, a bazaar at which domestic art products, furniture, and many other articles are sold, which belongs to the class of establishments which it was the intention of the law to protect against their larger and more powerful competitors; and the list of such surprises as to the actual effect of the statute in Berlin might be extended almost indefinitely.

Meanwhile, a large and superbly appointed new department store, equipped and managed in American style, was opened here in December last, and the original and principal establishment of that class in Berlin, against which the new law was specially aimed, has doubled its capacity and put forth greatly increased efforts and attractions during the past winter.

It is yet too soon to estimate accurately and conclusively the ultimate effects of the statute, and it is but just to remember that the present chorus of derisive comment comes mainly from journals and other sources which have been from the outset hostile to such legislation. But from what can be now seen, it is impossible not to admit that in so far as the effects of the law have yet been developed, it is fulfilling the predictions of its enemies rather than the hopes of its friends.

FRANK H. MASON,
Consul-General.

BERLIN, *April 6, 1901.*

AMERICAN MANUFACTURED PRODUCTS IN GERMANY.

It is one of the anomalies of the present situation in Germany that notwithstanding dull and declining home and foreign markets for most products of German manufacture, there is an unusually brisk and insistent demand for certain articles of American origin. During no recent period have so many inquiries, personal and by letter, been received at this consulate from German firms and individuals who wish to be put into direct relations with American manufacturers and exporters, as during the first three months of the current year. These inquiries cover a large range of merchandise, including small machinery of many kinds, typewriters, time and cash registers, furniture and office supplies, shoes, leather, lumber,

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and even dress goods and other textiles of wool and cotton which, surprising as it may seem, are now produced in the United States under conditions which, it is believed here, will warrant their export to European countries.

The significant and gratifying indication in all this is that American manufactures, as such, are becoming well known in Germany and are appreciated and approved for their quality and price. Here, as in Great Britain, an American label or trade-mark has come to be recognized as conveying a certain guaranty as to general excellence in material, workmanship, and ingenious adaptation to the purpose for which the article is intended. The American machine tool, the high-grade bicycle, dried and canned fruits, the \$3 shoe, the typewriter, the roll-top desk and various fixtures have set high standards of excellence in those specialties, and made the way more open and easy for the other manufactured products which are to follow. In respect to all these things, it is but justice to say that with few exceptions, German people, especially in the cities and larger towns, have been just and discriminating in their appreciation of American wares, and do not hesitate to buy the imported article when it is better or cheaper than a similar product of native manufacture. So notoriously is this true that purchasers here are often reproached by trade papers and manufacturers' associations with a want of patriotism and a weakness for imported articles which have the merit of novelty. So marked has been the German appreciation of American machinery and tools that the imports last year included 4,757 tons of machine tools of American origin, against 588 tons from Great Britain and 388 tons from France. Besides this, there was imported from the United States during the same year 20,249 tons of agricultural machinery and implements, 343 tons of electrical machines, 200 tons of steam engines, 574 tons of blowing machinery, and 331 tons of pumps.

But while all this is true, it must be admitted that, except in a few lines, American exporters have been slow in learning the best methods of utilizing the opportunities which are offered in the German market. The makers of machine tools and shoe-making machinery, typewriters, and a few other specialties learned the lesson early and well, and have profited by their knowledge. But, as a class, the American manufacturer—incomparable as such—is still in the primary grade as a merchant in foreign fields. That this should be so is perhaps a natural result of his education and environment. His success at home has been so complete and satisfying, his confidence in American methods so ingrained and assured, that he finds it hard to realize that customers can not be won in France, Germany, and Russia with catalogues and price lists in English; with

measurements, weights, and values stated in inches, pounds, and dollars; and offering to sell his incomparably superior products for "cash at ten days sight f. o. b. New York, sight draft with bill of lading attached."

The folly of all this has been explained and written threadbare in consular correspondence and published reports. It has been emphasized in the letters of German agents and importers, but still the confident exporter goes on in his efforts to "teach foreign purchasers American methods of business." If he ventures upon a foreign language it is almost invariably Spanish, and Germany has been strewn with Americo-Spanish catalogues and price lists which are twice as bulky and no more comprehensible to Germans than if printed in English alone. By way of making it pleasant and easy for the foreign customer, he often incloses a United States stamped envelope, printed with his own address, to contain the returning order. If he sends a traveling salesman or agent to study the market and make personal propaganda, the chances are that the emissary will be a bright, energetic, capable young American, who knows all about the goods and how to sell them in the United States or England, but is ignorant of every language but English and helpless beyond the realm of his mother tongue. Even with these disadvantages, the imperfectly equipped salesman often renders a valuable service by studying the actual needs and conditions of the foreign market, finding how it can be best reached, and, as one of them sententiously remarked, "getting the facts to convince our firm at home that Germany is not in the United States."

In respect to size, beauty of print and illustration, the trade catalogues issued by American manufacturers are the most elaborate and beautiful, as well as the most expensive, in the world, but for practical purposes they are often defective in several respects, the most essential of which are too many claims to superiority and too little definite and exact information concerning the weight, dimensions, and effective capacity of machinery; absence of metric weights and measurements and prices in francs, marks, or other foreign equivalents; and translations, when given at all, made by persons who do not understand the goods, and which are often so incorrect and imperfect as to furnish no adequate technical description of the merchandise. As a result of these defects, intending purchasers are frequently obliged to open a correspondence with the exporting manufacturer in order to obtain clear and definite information. This entails a serious waste of time and often leads to the loss of orders, which are given to manufacturers of other nationalities, who make careful and complete catalogues specially for the German market, or, what is still better, send a capable traveling salesman

to exhibit samples or photographs of the goods and make direct contracts in the office of the purchaser.

For the fact remains that with all that can be done by other means, it is the expert salesman—the drummer—who is the most effective nurse of new trade, either at home or abroad. The foreign firms or agents are also important adjuncts when they are trustworthy and enterprising, but there is always the possibility that they will hold back the sales of an imported article while pushing those of native production, or they may take advantage of loosely drawn patent and trade-mark laws to improve their own product at the expense of the foreign competitor. All this is but natural, and must always be taken into account by exporters who place their goods in the hands of foreign agents who are already established in a similar line of trade. Many of such houses in Germany have been enterprising and faithful and have built up an important and permanent traffic in American specialties. Others have utilized the opportunities thus acquired to use the imported machine or other article as a model to improve their own products, which they have pushed into complete control of the market.

There should be therefore a closer acquaintance and more binding agreement between exporter and agent, and this can be acquired only by personal contact and a more careful study of the conditions and requirements of European trade, made here on the spot by competent merchants or expert salesmen. In large enterprises, the sale of machinery and tools, sales of railway supplies, mining equipments, contracts for bridges, etc., our people have achieved brilliant successes because they have come abroad and done the business directly with purchasers. The enormous increase of the German export trade during the past twenty years is a monument to the efficiency of the good-natured, persistent, highly educated German drummer, who, with sample bag and order book, backed by subsidized steamship lines and German branch banks in foreign marts, has camped in the remotest markets of the earth until he has practically made them his own.

It is an ungracious though sometimes a wholesome duty to point out some of the other errors into which certain of our exporters have fallen through careless overconfidence or ignorance of foreign conditions, and to state from the standpoint of the German importer some of his grounds of complaint. The first of these charges is that American exporters are in many cases too lax and irresponsible in the fulfillment of contracts. As an example of what is meant by this, the following incident will serve: In August of last year, a furnace company in a southern State sold through an agent in Germany to a steel manufacturer in the Lower Rhine region 5,200

tons of pig iron, with the express stipulation that 4,000 tons should be shipped so as to be landed at Rotterdam on or before November 15, and the remainder to be landed at Hamburg not later than the same date, so as to be shipped up the Elbe to Silesia before the close of navigation. There had been a dearth of pig iron in Germany during the summer and early autumn of last year, and the purchaser waited impatiently for the American material. Letters and telegrams to the seller evoked no satisfactory reply. The autumn boom in steel manufacture had begun in the United States and he was taking care of his friends at home. Finally, on the 20th of December, 200 tons arrived at Hamburg. The Elbe was then frozen so that it had to be shipped inland by rail. The remaining 1,000 tons of that order and the 4,000 tons for Rotterdam failed to arrive, and the order was canceled. The Rhineland steel maker accepted the nondelivery because an important decline in the demand and prices of steel had meanwhile occurred in Germany and he could dispense with the American pig iron. But had this been otherwise, he might have bought the whole 5,000 tons in England, Germany, or anywhere, paid the market price for it, and collected the difference between that and his contract from the agent who sold him the American metal and failed to deliver it according to agreement. It should be clearly understood that under German laws, nonfulfillment of contract is a misdemeanor for which the delinquent can be made to pay both actual and contingent damages.

It follows that the German agent of an American exporter, selling goods on commission and depending upon the promptness and good faith of his principal not only for the stipulated delivery, but for the quality of the merchandise, is placed by any default in an exceedingly risky and delicate situation. Being a German subject, he is held subject to the laws of Germany in respect to all contracts made for fulfillment in this country. If he fails to deliver the right goods at the right time, the purchaser may at his option cancel the contract or cover it at the risk and account of the commission merchant who represents the foreign seller. Against the honor and good faith of most American exporters nothing can fairly be said, but there are in several lines of business firms of easier conscience and sharper methods who do not hesitate to conduct their export trade on the ethical basis of a horse trade and who stoop to practices which are complained of by the victims to their local chambers of commerce, are reported and discussed in newspapers, and furnish the enemies of American imports with just the ammunition that they crave.

Among cases of this kind which have been complained of at this consulate during the past few months have been one in which a large

shipment of grease for candle making was found adulterated with 28 per cent of water, and the exporter made a stubborn fight against allowing the discount justified by such fraudulent qualities; others in which machinery has been damaged in transit by reason of frail, imperfect packing, and scores of cases in which California prunes and other dried fruits are not graded at all, except that one layer of selected pieces representing the grade sold is laid on the top, while the remainder of the box is filled with small, discolored, and wholly inferior fruit belonging to a different grade and bearing a wholly inferior price. This abuse has been so flagrant that certain associations of fruit growers in the Pacific States have been organized to grade, pack, and control the quality of their aggregate products; but the reform is not yet complete, and a recent shipment of dried peaches from San Francisco has been one of the worst on record.

In no market of Europe will any trickery of this kind—any lapse whatever from absolute honesty and good faith in the fulfillment of a contract—entail such fatal consequences as in Germany, where every detail of commercial practice is strictly regulated by law, and where the purity and excellence of food products are guarded and enforced with a rigor which is all but fanatical.

Another point that few American exporters seem to grasp is that articles made from several different materials—as wood, steel, nickel, and copper—are uniformly classified for duty in Germany under the constituent material which bears the highest rate of duty. This has led to some queer and seemingly irrational decisions, as, for instance, where canned vegetables were classified as tinware because the duty rate on tin is far higher than on vegetables. When, therefore, machinery or other merchandise includes parts which are nick-eled, upholstered, or otherwise specially decorated, such parts should be packed separately. Letters or catalogues should state precisely not only what the article weighs, but how many cubic feet of space it occupies when packed in the smallest practicable compass for shipping, and whether the individual parts are of steel, brass, iron, wood, or other material.

While it is probable that the imports of American machine tools, electrical and even agricultural machinery, may show a marked decline during the current year as compared with 1900 and 1899, there is yet an unsatisfied demand for a wide range of novelties and special inventions in which American ingenuity and adroitness in manufacture have produced something strikingly superior to what is known or used in this country.

As an indication of what is meant may be cited the recent inquiry of a leading importing firm at Berlin, which solicits information and propositions from makers of the most modern and highly im-

proved centrifugal machinery for chemical and laundry purposes, filling machines for charging small paper bags with groceries and medical preparations, filling bottles with salts, etc., and machinery for making pastilles and lozenges of all kinds. It is well known that in these and many other specialties, though not in all, American machinery is unequaled; but there is a lack of means for obtaining here exact knowledge, not only of the latest improvements, but of their weight and cost. Dealers with experience, ample resources, and knowledge of the German market are numerous and ready; it is the American salesman with samples and specifications who is generally lacking.

Finally, the American manufacturer who seeks to establish a market in an old and well-supplied country like Germany should realize that it costs something to advertise and introduce a new article, and ought to be willing to pay part of the expense of the enterprise. This he can do by an allowance for advertising purposes, or by granting a longer credit for the goods themselves. Before giving the exclusive agency of a product to a single firm, the exporter should know with whom he is dealing; but, once satisfied on that point, absolute faith should be kept. Many an American exporter has spoiled his chance with the best German importers by sending mailed circulars and propositions broadcast, whereas the article was one which required a special representative agency for its proper introduction. Few responsible houses will undertake the introduction of a new kind of merchandise which any competing firm can obtain direct from the American exporter. In all these respects, business men are very much alike the world over, and it is always a wholesome process for the seller to imagine himself on all questions of detail in the position of the buyer, and consider what he would or would not be willing to do if their relations were reversed.

FRANK H. MASON,
Consul-General.

BERLIN, *April 24, 1901.*

AMERICAN TEXTILES FOR EUROPEAN MARKETS.

The Leipziger Tageblatt of the 18th of April contains the following note of alarm concerning the development of certain textile industries in the United States:

AMERICA OUR GREATEST COMPETITOR.

The Confectionair writes in its report on the situation:

It is no pleasant feeling to see someone whose progress we have watched with the superiority of a fatherly wellwisher gradually outstrip us. As long as the giant America remained in its child's shoes and amused itself at the expense of its old aunt Europe, but could not get along without her assistance, we were often

irritated at the young boy which began to stretch out its strong, undisciplined limbs; we could not be seriously angry with him, however, because the stronger and larger he became the more he consumed, and one must say this of him, he paid in ready money for what he consumed. But the boy with the insatiable appetite has become a man in the meantime, has got upon his own feet, and, like the man who would not marry because he did not see why he should support the daughter of other people, young America does not see why it should support the industries of foreign countries. America, whose industries were quite unimportant twenty years ago, has in the meantime reached the height where it can get along in most things without European imports. With a quickness almost without example in the history of civilization, an industry has been developed which, without any old tradition, produces in many respects products worthy to be used as models. What is lacking in tradition is made up for twice and three times in machines and talent for invention and organization, more favorable conditions of production, and cheaper raw material.

It is difficult to do anything against this. We can not forbid America to develop its industries and to expand the same with the help of its gigantic trusts to a dizzy height. We can not prevent it, unfortunately, from placing a preposterous duty on manufactures which simply cuts off all foreign competition; but what we should strongly fight against is being pushed out of our own market by the underbidding of American industries. The importation of American goods into Europe is becoming steadily more dangerous.

Even in fancy articles, in which Europe has set the styles for the entire world, the American manufacturers are beginning to compete with the European. British calico prints are also already receiving competition from America. As we hear, travelers of a known American house have offered American cotton stuffs in England with much success, and the London authorities declare them to be tasteful and worth their price.

The house in question is that of William Simpson Sons & Co., of Philadelphia, one of the largest manufacturing and printing factories of cotton that exist in the country.

On being questioned, the business manager of the firm gave the following information:

"Our firm has carried on quite a considerable export business with Europe in cretonnes and other cotton stuffs intended for curtains and draperies, through the medium of European firms in the principal cities, for some time. These efforts were so successful that we have recently decided to make a special effort to widen our business with Europe.

"In the first place, we have commenced to do business direct by sending out traveling agents with samples, and we have increased the sample list by placing fancy cotton goods for women's clothing on it. Already, a good number of orders have been received, which prove that for these articles also there is a good market in Europe. Our manufactures are superior to the European article through the originality of the taste and the color combinations, and, although our goods are more expensive than the English, the good qualities of our manufactures appear to make up for the difference in price. The orders that we have received do not bear the character of sample orders, and they guarantee the existence of a good and paying European market for our fancy cotton goods."

The New York Lorraine Manufacturing Company, which received a first prize for its exhibition of cotton stuffs in Paris, intends to found a Paris house which shall introduce its fancy woven stuffs for women's dresses into Europe. Fancy American cotton stuffs will not be long, therefore, in the character of novelties. Another American fancy article which has been introduced into Europe from

America for some time is simply trimmed ladies' hats. The firm which has already achieved marked success in this line is the New York house of Phipps & Atchison.

This firm gives the following information:

"We started an agency in Cologne a short time ago, without anticipating any large result. We sent our agency a dozen different hat samples and were all the more surprised when we received within a short time an order for several hundred dollars' worth, and our agent informed us that he was convinced that Germany is a good market for us at paying prices. We were so much encouraged by this that we have sent a traveling agent to Europe, who is endeavoring to establish direct business with our goods in Great Britain and France."

But also in other ways than with the wholesale import, America is becoming ominous to us. The enterprising country is making us happy already with retail businesses of its own. The large shoe factory of Julius Barthmann, in Newark, N. J., has decided to establish fifteen shoe stores in the large cities of Germany. The large department-store proprietors Siegel, Cooper & Co. intend to establish a branch in London. It ought to be time to consider how one can defend oneself against this dangerous competition. As we have already stated before, the only means we see to protect ourselves from this threatened storm of American goods is a middle European, or, still better, a European, tariff alliance against America, in case America does not prefer to adopt the policy of the open door and by a considerable reduction of its duties make it possible for foreign goods to compete in its own markets.

DEAN B. MASON,

BERLIN, *April 18, 1901.*

Vice and Deputy Consul-General.

FURNITURE IN SOUTHERN GERMANY.

If some enterprising United States furniture manufacturer would turn his attention to this part of Europe, ship his goods knocked down to save transportation expenses, and have a place here where a few American workmen could assemble the parts, polish, and generally put them into first-class shape, I have little doubt that a profitable business could be done. The maker, before shipping, would do well to study the styles and shapes most suited to the local market, so that no mistakes would be made at the beginning. Once well started, this trade could not fail to pay.

What is most wanted here are comfortable chairs, cheap desks, wardrobes with chests of drawers, wooden bedsteads, and articles of a similar nature. For instance, I have never seen here one of those pretty, cheap, painted cottage sets so popular in the United States. With a little introduction, if I am not mistaken, they would sell well; but no double bedsteads should be sent, as only single beds are used in this part of Germany.

For this enterprise to be a permanent, paying concern, it must be kept in the manufacturer's own hands, or inside of a year the

market would be flooded with poor imitations, and importations would practically cease.

A German patent should be taken out on every new article, before it is put on sale.

O. J. D. HUGHES,

COBURG, *April 18, 1901.*

Consul.

UNITED STATES PRESERVES IN GERMANY.

It seems strange that our large producers of fruit preserves have never seriously tried to capture the German market for this line of goods. With the exception of the seaboard cities—Hamburg, Bremen, etc.—and a few places like Berlin and Dresden, preserves put up in the United States are not to be found, except, perhaps, where the resident consul has induced some storekeeper to put in a small stock.

It is a well-known fact that every German family, be it ever so humble, must have its "compot," or sweet, served with the meat at dinner. Where our dried fruits are known, they have been well liked and much used, but our jams and marmalades ought also to be pushed. As it is at present, either the Metz or English goods are used. Our preserves could be imported as cheaply, if it were done by the American preserver himself and not through the hands of German middlemen. First-class goods must be sent, carefully put up in one-fourth, one-half, and 1 kilogram (0.5509-pound, 1.1023-pound, and 2.2046-pound) packages, either in glass or stone pots for the better-class trade, and in stone or wood vessels of 5 and 10 kilogram (11.023 and 22.046 pound) sizes, from which the retailers may supply small customers.

Best of all would be for the American canning companies to establish depots in the interior cities of Germany, from which to sell direct to the small grocery stores, etc. These storekeepers, as a rule, are not wealthy enough to carry large stocks, and prefer to buy in small quantities and often.

O. J. D. HUGHES,

COBURG, *April 18, 1901.*

Consul.

MANNHEIM AS A CENTER FOR AMERICAN MANUFACTURES.

I would call attention to the importance of this city as a trade center and especially as a point for the establishment of facilities for distribution to south and western German cities.

Mannheim, including the city of Ludwigshafen, from which it is separated only by the Rhine, has, as shown by the census just taken, a population of 201,000. In 1890, the population of Mannheim alone was 75,059; in 1895, 91,116; and in 1900 it was 140,384, an increase of more than 33 per cent in five years, a rate of increase surpassed by only one city of importance in Germany. This population does not include a full 10,000, just beyond the city limits in several manufacturing suburbs.

There passed through the customs department of this city, not including the city of Ludwigshafen, during the year 1900, the following quantities of some important articles of import into the Empire. The figures are given in metric tons (2,204.6 pounds).

Article.	Quantity.	Article.	Quantity.
	<i>Tons.</i>		<i>Tons.</i>
Wheat.....	*263,311	Tropical fruits.....	4,495
Rye.....	7,373	Raw coffee.....	3,006
Oats.....	15,012	Unmanufactured tobacco.....	2,224
Barley.....	11,423	Refined petroleum.....	63,939
Corn.....	85,675	Superphosphate.....	5,465
Lumber.....	57,608		

* This is more than 20 per cent of the total import into the Empire during the year.

On December 1, 1900, there were in the warehouses of this city the following quantities (metric tons) of the more important articles of merchandise:

Article.	Quantity.	Article.	Quantity.
	<i>Tons.</i>		<i>Tons.</i>
Wheat.....	71,447	Flour.....	761
Rye.....	2,498	Rice.....	274
Oats.....	4,932	Coffee.....	1,317
Barley.....	3,798	Petroleum.....	15,741
Corn.....	4,242		

These figures are referred to merely for the purpose of indicating the importance of Mannheim, situated at the head of the principal Rhine navigation, as a center of trade for southwestern Germany and the near-by territory, and as preliminary to the suggestion that

in certain other lines of export, the same territory has not been so systematically worked as in those named above.

The value of warehouse facilities and of well-established agencies for the handling of American goods in Germany has been noted again and again in CONSULAR REPORTS. Letters received and other inquiries made would indicate that some of our manufacturers are still hoping to sell to retail dealers direct, often by means of correspondence alone. In isolated cases, good results may have followed this method. In the majority of cases, it certainly does not have the desired effect. The local dealer is generally timid and buys cautiously. If his American stock is low, he can replenish only after long delays. In the meantime, his customers want goods, and he soon becomes disgusted with the effort to sell goods which must come to him a distance of 5,000 miles or more. On the other hand, the manufacturer, being remote from the consumer, has less chance to study the needs of the particular locality and to adapt his goods to those needs. The foreign business appears to be insignificant, and he soon neglects it or abandons it entirely.

The shoe trade as it exists in this city is perhaps the best illustration in point. At least six dealers sell American shoes. They buy from manufacturers in Boston and in Chicago. These dealers report a considerable demand for American shoes. This demand certainly exists, but it is safe to say that the trade in American shoes in this combined city of 200,000 people would not require nearly the full time of one clerk; and it is doubtful whether it ever will, while the dealer must get his supply direct from the manufacturer in the United States and meet the usual delays incident to shipments over long distances and by different lines of transportation. If the local shoe dealer could replenish his stock from some large supply house in this city, Berlin, or Hamburg, there is no doubt that the trade in American shoes in Mannheim and the neighboring cities of Karlsruhe, Heidelberg, Baden Baden, Wiesbaden, Freiburg, etc., would be an important item.

What is true of the shoe trade will be true to a greater or less extent in all cases where the retail dealer must depend upon the manufacturer directly for his supply. In most lines, it may be fairly said, our manufacturers have recognized this and the most ample facilities have been afforded for supplying the local dealer. The results have been in most cases satisfactory, and the city of Mannheim is a desirable point in which to apply the principle still further. Manufacturing is constantly growing in extent and variety in this part of Germany, and creating new demands for improved machinery and tools. This activity has given rise to a large

amount of new residence building, which should make a constant demand for our bath tubs, furniture, and other articles of export.

The selection of this city as a location for large warehouses and factories by such foreign concerns as the Standard Oil Company, the Pure Oil Company, a Russian oil company, the Diamond Match Company, the Sunlight Soap Company, and others is evidence of its desirability as a center of distribution for foreign products.

H. W. HARRIS,

MANNHEIM, *March 25, 1901.*

Consul.

LIEGE TRADE WITH THE UNITED STATES.

Trade between this consular district and the United States is undergoing important changes, generally to the advantage of the latter. The consumption of American-made goods here is several times as great as it was three years ago. It is a very common thing to see in a Liege shop window a show card bearing the word "Americaine." In some cases, however, the articles are imitations. Goods manufactured in the United States meet with a much more ready sale than formerly, and usually at a considerable advance in price, since their great superiority has come to be so generally recognized.

The change in the variety and quantity of goods shipped to the United States is also very marked. It is interesting to note that more than one-third of the firearms imported by the United States from this district are in the shape of gun-barrel tubes, rough bored and forged. Prior to the 1897 tariff law and for a year thereafter, a shipment of gun barrels was a rare occurrence, and when one was made it was of high-grade Damask barrels.

During January, 1900, there were shipped to the United States 18,664 gun-barrel tubes, valued at 83,521.13 francs (\$16,118.59), and for February 18,519 tubes, at 85,163.34 francs (\$16,436.52), against for January of this year 24,391 tubes at a value of 103,055.96 francs (\$19,889.80) and for February 27,171 tubes at 112,055.37 francs (\$21,626.69). It will be noted that a year ago the average price for a gun-barrel tube was 86 cents, while this year the average is 80 cents, and the quality of the goods shipped is said to be better.

Had the 37,183 gun-barrel tubes exported during January and February of last year been made into guns and shipped to the United States, as they were prior to 1898, they would have represented a value of at least \$111,549, instead of \$32,555.11, and those for the same time this year, \$154,686, instead of \$41,516.49.

Guns that were shipped to the United States prior to 1897 at

from 30 to 33 francs (\$5.79 to \$6.37) are now sold at from 23.50 to 25.40 francs (\$4.54 to \$4.90), and in most cases the quality of the guns is far superior to what it formerly was. About four-fifths of the guns exported to the United States from here are machine made. The parts are interchangeable and are far superior to the hand-made articles sold at the same price. Nearly all the machinery used in the manufacture of these guns is imported from the United States.

Another feature of the gun trade of particular interest is its centralization. At present, 75 per cent of the guns sent to the United States are shipped by four firms, whereas formerly there were twenty about equally represented.

During the first two months of this year, beet sugar to the amount of \$3,899.04 was exported to the United States. For the same period, no straw goods were shipped from here, against \$2,591.10 for the same period in 1900 and \$13,551.14 for 1899. The reason given by exporters for this decline is that the braids are made so much cheaper in Switzerland and Italy that they are driven out of the American market.

For the year 1897, wool and woolen goods cut a big figure in the exports from this district, but since that time they have been a small factor, not a pound of wool having been sent to the United States and only \$196,757.94 worth of woolen goods for the fiscal year ended June 30, 1900.

The exportation of salted sheepskins, however, shows a remarkable increase, being \$70,459.30 for the fiscal year ended June 30, 1898, and \$149,269.68 for the year ended June 30, 1900. The shipments of cut glass also show a marked increase over January and February of last year.

For the first two months of 1899, the exports from this district were \$123,963.65; for 1900, \$142,716.30; and for 1901, \$159,199.18; while for the fiscal year ended June 30, 1898, they amounted to \$1,234,746.28; for 1899, \$1,338,807.97; and for 1900, \$1,637,002.59.

ALFRED A. WINSLOW,

LIEGE, *March 27, 1901.*

Consul.

HOW TO CREATE AMERICAN TRADE IN FRANCE.

CONSULAR AID.

The impetus that has recently been given to exportations from the United States, and the zeal that American exporters are showing to increase their trade with foreign countries, make necessary certain suggestions for their assistance.

This consulate—and it is presumed other consulates also—is

flooded with requests from American citizens for information and aid in extending their trade. The form of the requests is generally that names and addresses of firms interested in particular branches of commerce in which the writers are engaged be furnished by the consul, or that their catalogues, which are often sent in large quantities and usually lack sufficient postage (which must, however, be paid to the French postman), should be distributed by the consular officer.

The parties making these requests are as a rule entirely unfamiliar with the country and its requirements, and, if the consul makes any suggestions that are contrary to the manufacturer's preconceived idea, his word is considered unsatisfactory.

It is pleasant to give satisfaction to those who ask, and doubly so when the interests of one's country are advanced. It is therefore respectfully suggested that American exporters desiring to extend their foreign business comply with the following conditions before they take the trouble to send catalogues, etc., to European countries.

SEEKING TRADE IN WRONG PLACES.

The American exporter must understand the wants of the market he desires to enter and supply before he can find purchasers. It is no proof or reason that because a certain article finds a ready sale in the United States, it will sell abroad.

A short time ago, two letters from American exporters were received at this office. One was from a manufacturer of refrigerators, the other from a manufacturer of kitchen ranges having hot-water backs.

After carefully studying this consular district, it was found that only two private houses possessed refrigerators (both of which were owned by Americans who brought the articles from the United States), and two ranges having hot-water backs were also in houses belonging to Americans.

Ice is a commodity that ordinary persons here never use except in sickness. The winters are so damp and mild that practically no ice can be collected; therefore, if any be consumed, it must be manufactured artificially.

The ranges with hot-water backs are unknown by these people. It will be many years before such articles are required; while, on the contrary, plain, simple base-burners (using bituminous coal) will find a ready and steady sale if manufactured especially for the French market and to suit the French taste.

Rocking-chairs never sell, with rare exceptions; but plain chairs, such as have been used in France for centuries, will continue to be sold for another hundred years. This rule applies to many other articles popular in America, but unsalable in France.

LANGUAGE, WEIGHTS, AND CURRENCY.

Every catalogue, business card, etc., that is to be distributed in France must be in the French language; weights and prices must be expressed according to the metric system and in francs. No dealer, either wholesale or retail, is going to translate any documents or push American articles unless he is richly paid for the trouble. An ounce, bushel, yard, pound, and mile carry no meaning to the ordinary Frenchman, and he would prefer to pay more for an inferior article described in familiar terms and language than to bother trying to decipher a paper in an unknown tongue and with unintelligible weights, measures, and currency. Not only should the French language be used, but catalogues must be attractive to insure their being read.

PACKING.

All commodities destined for table use, such as preserved meats, fish, fruits, preserves, etc., should be neatly, attractively, and carefully put up and packed. The appearance of packages has much to do with selling merchandise in France. There is no country in the world whose people are more particular as to the manner in which food (and in fact everything) is presented to them than the French. It is certain that many excellent articles fail to be accepted through faulty and careless or slovenly packing.

GOODS MUST EQUAL SAMPLES.

Any deviation—even an unintentional deviation—in the shape, style, or color of the wrappings, or any difference in the goods delivered from those shown, is very apt to awaken suspicion in the mind of the foreign purchaser, although no wrong may be done or intended; exact conformity to samples, on the other hand, always inspires confidence.

INFORMATION WITH REGARD TO PRICES AND COSTS.

When presenting bulky goods, such as hardware, agricultural implements, wood, tools, etc., the seller should be careful to give the purchaser a definite idea as to the probable costs. If a French buyer can know that the merchandise will cost so many francs per 100 kilograms in New York, and that the freight to Havre, Bordeaux, Marseilles, or any other French port will be a certain sum on a given date, with an average price for a year, he is enlightened on the very points that he wishes to know before considering the purchase. Sales may be made more readily in this way than otherwise.

The exporter is advised to state that the price given includes cost, freight, and insurance. It is also wiser for the seller to insist that the buyer shall pay the customs dues, dock dues, and inland

charges (if any), because the consignee can make better terms than the foreigner can ever hope to make.

STANDING OF FRENCH MERCHANTS.

There is published in France a commercial directory called "Le Bottin;" copies of this book may be found in the libraries of nearly all large American cities and in many of the important hotels in the United States. "Le Bottin" gives names and addresses of manufacturers, dealers, and merchants in the several Departments of the country, which are classified according to trades, professions, etc., in the various cities and towns of France. Exporters will find this an aid in trying to extend their foreign business; if they care to examine this directory, they can easily find out the names of persons apt to be interested in their line of trade, and if they desire further information concerning the French dealers, the consul of the district in which these people live can readily give any information about them that he may be able to obtain.

The solvency of merchants, manufacturers, and dealers in France is perhaps more difficult to ascertain than in the United States, but general data can be gotten in most instances without much trouble. All banks in France will give information as to any house or firm required for a small fee—from 25 to 75 cents for each person.

If the foregoing suggestions are followed, time will be saved to the exporter and consul and much useless correspondence avoided.

WALTER T. GRIFFIN,
Commercial Agent.

LIMOGES, *March 14, 1901.*

AUSTRIA'S COAL PRODUCTION.

A recent report of the Austrian Ministry of Agriculture gives some interesting data relating to the coal industry of the Empire in 1899.

In the year under review, the total number of lignite mines in Austria was 831; but only 246 of these were operated. The total number of persons employed in these mines was 50,790, viz, 47,375 men, 2,286 women, and 1,129 youths. The year's output of lignite was 217,517,941 quintals (21,751,794 gross tons), representing a total value of 95,167,467 crowns (\$19,318,996), or an average value of 4.37 crowns (89 cents) per gross ton. Of this quantity, the State mines at Brüx and Hall produced $3\frac{2}{3}$ per cent, or 787,821 tons, and the various private concerns $96\frac{1}{3}$ per cent, or 20,963,973 tons. Besides, there were manufactured from lignite 53,027 tons of briquettes, worth 587,867 crowns (\$119,337), or 11.08 crowns (\$2.25) per ton.

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The total exports of lignite amounted to 8,669,496 tons, exclusive of 32,460 tons of briquettes. By far the greater portion of these exports went to Germany; Hungary, Italy, Switzerland, Bosnia, and Herzegovina taking the remainder.

The number of mines producing bituminous coal was 326, of which only 138 were operated during the year covered by the report. The total number of operatives employed in this branch of the coal industry was 62,943, viz, 55,255 men, 3,268 women, and 4,420 youths. The quantity of bituminous coal produced was 11,455,138 tons, representing a total value of 89,500,247 crowns (\$18,168,550), or an average value of 7.81 crowns (\$1.59) per ton.

There were also produced 1,226,909 tons of coke, valued, on an average, at 17.55 crowns (\$3.56) per ton, or at 21,539,898 crowns (\$4,372,599) in all. The quantity of coal consumed for this purpose was 1,941,500 tons, and the percentage of coke obtained was 63.19. The following provinces shared in the production of this commodity:

	Tons.
Moravia.....	657,322
Silesia	515,495
Bohemia	54,092

Nothing that is combustible is permitted to go to waste here. Pea coal is mixed with pitch and formed into bricks (briquettes), and coal dust is pressed into balls (boulettes). The reported total production of the former was 16,064, and of the latter, 55,718 tons. The average price of these by-products of bituminous coal is stated to have been 10.81 crowns (\$2.19) per ton.

The exports of bituminous coal amounted to 1,239,808 tons, and those of coke to 475,209 tons. They went principally to Hungary and the German Empire.

It will be seen from the above that the total annual production of coal in Austria is over 33,000,000 tons. To this should be added from 7,000,000 to 8,000,000 tons produced in Hungary, making the total production of coal in the Empire about 41,000,000 tons. As, however, Austria-Hungary consumes from 58,000,000 to 62,000,000 tons, the annual deficit to be made good by importation amounts to about 18,000,000 tons.

FREDK. W. HOSSFELD,

TRIESTE, *March 14, 1901.*

Consul.

TRADE METHODS IN GERMANY.

I am constantly in receipt of letters, catalogues, etc., from our manufacturers and export associations, wishing to introduce American goods into this district and requesting the names of reliable purchasers. Inquiries are made by this office and information is promptly given.

In order to find out whether my work had led to satisfactory results, I called of late on some prominent merchants here and, while it gave me pleasure to learn that my endeavors had been partly successful, I was told that our exporters are at fault in some respects. It is for this reason that I submit the following as the most interesting part of my interviews, to serve for the information and guidance of our shippers.

In the first place, it is admitted that our manufactures excel in variety, beauty of style, and adaptability all others, wheresoever made. Letters, circulars, catalogues, etc., in English are, however, of almost no value, and those who desire to secure this market for their goods must pursue the methods that are principally used here. The most effectual means would be the canvassing of every city and town by intelligent agents with samples of the goods they sell, and with full knowledge of every detail of their special lines, so as to give all information desired. A careful study could in this way be made of the tastes and peculiarities of the region, and full particulars of the requirements of this market could be sent home. Moreover, careful inquiries could be made with regard to financial standing of buyers.

My attention was also called to the disinclination of many of our manufacturers to adapt their fabrics to the habits and tastes of other countries. They are averse, it seems, to deviating from their usual sizes, forms, etc., though it would seem that when a new market for certain articles is to be acquired, the goods should be made to suit the wishes of the purchasers.

Moreover, it was said that American manufacturers are often anxious to make large sales at the start, without considering that new articles can be introduced to consumers only by the expenditure of much patience and perseverance.

Great fault is found with our terms of credit. While the business in this country is mainly done on terms varying from three to six months' time, our merchants insist in many cases on cash on delivery and even before delivery, so that receivers are unable to examine

goods before payment and can not know whether the shipments are in accordance with orders or not. Of course, the demand for cash on receipt is well justified if the purchaser's financial standing is of a questionable nature; but I know of first-class German houses that have been subjected to the same rigid terms, causing a discontinuation of purchases and material losses to our trade.

Another point one of my informants laid stress on was the packing of our goods; the greatest precaution should be used in this regard. Care should be taken to prevent breakage and no old or damaged cases should be used. As the customs duties are levied here on the gross weight, less a certain percentage for tare, the advantage of lightness in packing is essential. Manufacturers who ship goods to this country should thoroughly acquaint themselves with the German tariff,* and pack their goods in such a manner as to save the purchaser trouble and useless expense. For instance, a much higher duty is charged on nickel-plated iron than on cast-iron stoves. American shippers of stoves will therefore act wisely if they separate the nickel-plated parts and pack them in one case and the heavy iron parts in another, so as not to have the receivers pay the higher duty on the entire weight. The same is true of many other articles.

CHARLES NEUER,
Consular Agent.

GERA, April 11, 1901.

RUSSIAN TRADE WITH THE UNITED STATES IN 1900.

The following figures, showing the direct trade of Russia with the United States in 1900, have been received from Consul-General Holloway, of St. Petersburg, April 20, 1901:

Exports and imports.	Amount.	Value.
<i>Exports.</i>	<i>Pounds.</i>	
Sweet root.....	21,960,000	\$278,615
Flax.....	1,450,000	400,495
Flax tow.....	1,480,000	66,435
Sheep hides.....	1,380,000	241,535
Leather, undressed.....	1,450,000	198,335
Horsehair.....	80,000	30,000
Wool, unspun.....	2,340,000	291,580
Camel wool.....	240,000	21,630
Manganese.....	104,500,000	480,250
Different wares.....	117,000,000	71,585
Total.....	195,940,000	1,790,280

*See Special Consular Reports, Tariffs of Foreign Countries.

Exports and imports.	Amount.	Value.
<i>Imports.</i>	<i>Pounds.</i>	
Maize.....	50,280,000	\$368,740
Oats, Herculo.....	80,000	3,900
Tobacco.....	40,000	23,175
Lard.....	2,360,000	157,075
Paraffin.....	520,000	36,565
Leather, undressed.....	1,520,000	72,100
Furs.....	16,000	119,055
Timber.....	3,320,000	107,120
Dill seed.....	720,000	21,630
Coal.....	18,680,000	35,020
White resin.....	17,000,000	272,950
Mineral oils.....	840,000	49,440
Tannin.....	16,760,000	205,485
Dyewood.....	23,000,000	265,740
Copper.....	2,320,000	322,475
Pig-iron articles.....	240,000	19,570
Iron and steel wares.....	640,000	42,230
Locks.....	160,000	3,090
Handicraft instruments.....	20,000	15,450
Machines and apparatus of, pig iron, iron, and steel.....	2,040,000	220,600
Parts of machines.....	880,000	74,160
Cotton, raw.....	205,440,000	18,413,310
Jute, raw.....	4,680,000	142,140
Wool, raw.....	120,000	27,285
Ropes and tows.....	440,000	16,995
Different wares.....		568,045
Total.....	368,316,000	21,691,515

The total exports of Russia in 1900, adds Mr. Holloway, were valued at \$354,604,280 and the imports at \$294,805,440.

FOREIGNERS IN RUSSIA.

Ambassador Tower sends from St. Petersburg, March 22, 1901, translation of laws relating to the rights of foreigners in Russia and the conditions under which Jews are permitted to settle there, as follows:

PART VI, VOL. IX, RELATIVE TO FOREIGNERS.

Chapter 1.—General conditions.

SECTION 817. Natives of all foreign countries who have not become Russian subjects are considered as foreigners.

SEC. 818. Foreigners of all nationality have the right to enter and to reside in Russia, as well as to leave Russia, in conformity with the regulations contained in the statutes relative to passports. These rules extend also to the natives of Kaim.

Remark 1.—Natives of Korea and China are prohibited from settling on the frontiers of Russia.

Remark 2.—The rules relative to the entry of foreign Jews into Russia are stipulated in the statutes relative to passports.

SEC. 819. Foreign Jews are not allowed to settle in Russia nor to become Russian subjects.

Remark 1.—Exceptions to the rules expressed in section 819 are made in favor of Jews from Central Asia, regardless of their nationality. These Jews are allowed to enter Russia at the option of the Minister of the Interior or the governor-general of Turkestan and to become Russian subjects, in which event they are inscribed as citizens of the towns in the province of Oremburg and of the Turkestan district (excepting the towns of Irgoz, Tourga, Aktubinsk, and Temira) on the understanding that they are to become merchants and that they obey the laws prescribed for Jews in general.

Remark 2.—Among foreign Jews who are allowed to enter and to live within the boundaries allotted to Jews are:

(1) Those who come to build factories and works, excepting distilleries, for which they require special permits (see section 828, remark 2). These Jews, when they enter Russia, must give their signature to the effect that they will construct the factory they intend to build within a period of three years. If at the expiration of the three years they have not erected the factory, they are expelled from Russia; if, on the contrary, they have built the proposed factory, they are allowed to become Russian subjects upon observing the provisions stipulated in section 836 and those following.

(2) Jews, workmen, required by manufacturers, are allowed to enter Russia upon the presentation of (*a*) a legal passport; (*b*) a certificate of the Russian consulate, and where there is no consul, of an embassy or legation, stating their position, their former occupation, in what branch they worked, and when artisans, by whom and for what reason they have been engaged to come to Russia. These workmen are allowed to reside in those districts which are allotted for Jews and may become Russian subjects, but not before they have served five years at the factories and have obtained from the owners of the works and the local authorities a certificate of worker and of good conduct, observing at the same time the provisions of section 836 and those following.

Remark 3.—In 1833, in order to avert the false declaration made by Jews who desired to trade, it was established that all foreigners who came to Russia to enter into certain classes of commerce, such as merchants or other taxable classes, without becoming Russian subjects or, in general, whether they did become Russian subjects, should be required to produce preliminary certificates from foreign consistories or other high clergy officials stating that they and their families which accompany them are Christians, before they are allowed to receive their trading licenses. These provisions extend also to the inhabitants of the provinces of Poland and of the Grand Duchy of Finland, who desire to enter trading guilds, in conformity with the rules established. The above-named rules do not refer to those foreigners, natives of Russia in Asia, who may enter the trade guilds in those provinces where ordinary Jews are not allowed to settle.

SEC. 820. Jewesses, Russian subjects, who have married foreign Jews or foreigners in general, should they become widows or be divorced from their husbands, have the right, if they did not leave the country, upon the presentation by them of certificates attesting the death of their husband or divorce, to return to Russian subjection. The children issuing from such marriages, when they remain under the charge of the mother, may live with her up to the time they attain their majority, when they must declare whether they wish to become Russian subjects or they must leave the Empire.

Remark.—Jewesses who marry Austrian subjects, but who are not permitted by the Austrian authorities to settle in that country, are allowed to remain at their

places of residence in Russia as foreigners, and, should the marriage cease owing to the death of the husband or divorce, the widows may again become Russian subjects. The minor children issuing from such marriages are allowed to remain with their mother until they attain their majority, when they are given one year's time to decide whether they will become Russian subjects or must leave the Empire. Mothers and, in case of their death, the nearest parents have the right to care for and to keep the children issuing from such marriages until they have attained their majority.

SEC. 821. Dervishes are not allowed to become Russians.

Chapter II.—Relating to the rights of foreigners.

SEC. 822. Foreigners who live in Russia are personally, as well as their property, subject to the laws of Russia and enjoy the privileges and protection of the laws.

SEC. 823. Foreigners, when noblemen, belonging to the intelligent classes, who can prove their nobility in other countries, are not subjected to corporal punishment in case of offense.

SEC. 824. Foreigners are not allowed to enter the military or civil service. As an exception to this rule, foreigners are allowed to enter the civil service in cases foreseen in the statutes of service when appointed by the Government.

SEC. 825. Children of foreigners who are born in Russia and enter into the service of the Crown are subjected to the same rules as native subjects. (Statutes of Government service.)

SEC. 826. Foreigners, men of science, artists, capitalists, and owners of important factories and manufactories, although they do not become Russian subjects, may be personally given the title of honorary citizens when, with a view to the benefits which may be reaped therefrom, the ministry will take steps for this purpose. In these cases, the title of honorary citizen is generally granted by a special ukase published by the existing Senate.

SEC. 827. Foreigners, scientific men, artists, rich traders, and owners of manufactories and works who have received, as stated in the foregoing (826) section, the title of honorary citizenship, may in like manner desire this title to be extended to their descendants, but not before they have acquired Russian subjection in the manner prescribed by law, and have lived under this title for a period of ten years, with the approval of the authorities. These foreigners who have not become Russian subjects may, ten years after they received the title of honorary citizen, ask that this title may be extended to their children who have become Russian subjects.

SEC. 828. Foreigners are allowed to take out industry certificates or licenses and to benefit by all the privileges which these licenses give to Russian subjects.

Remark 1.—The above rule is somewhat limited for foreigners engaged in the mining industry, as foreseen in the mining code.

Remark 2.—Foreign Jews who come to Russia, when they are known for their social standing and important commercial undertakings, are allowed, upon permission granted in each separate case by consent of the Ministries of Finance and of Foreign Affairs, to trade in Russia, to establish banking houses, and build works, upon acquiring the guild of the first class for trading purposes and one of the three classes of licenses for those engaged in industrial enterprises. Jews are allowed also to purchase and to rent land and uninhabited estates, upon observing the rules established for this purpose in the law of conditions. Those foreign Jews whose social and commercial standing is known, who visit the Russian Empire temporarily for the purpose of purchasing and exporting Russian manufactures, may also receive trading licenses of the first guild upon the mutual consent

in each separate case of the Ministries of Finance, of the Interior, and of Foreign Affairs.

Remark 3.—In 1842, it was resolved that Jews coming to the province of Orenburg from Central Asia would be permitted to do business there on the same footing as natives of Khiva and Bokhara, on condition, however, that if they left Orenburg for interior provinces, they would have to observe the general rules prescribed for Jews.

SEC. 829. Foreigners are allowed to participate in trading companies according to the statutes of industries and to hire and keep servants and workmen in accordance with the general laws.

SEC. 830. Foreigners may acquire, either through purchase, inheritance, legacy, allotment from the Government, or in any other legal manner, all kind of real estate.

Remark 1.—Should they happen to purchase an estate in which the peasants are still under obligations to the proprietor, foreigners are bound to accept the obligations on the same footing as Russians, according to power given in supplement 3 to remark of section 88, at the same time as the deed of purchase is drawn up, and to recognize the peasants who are on the land, as well as their land and farms, as belonging to them personally.

Remark 2.—Exceptions to the rules expressed in this (830) section are established for the Turkestan region and for the districts of Akmolinsk, Semiplatinsk, Semetiechinsk (see section 706, remark 3), Ouralsk, and Turgaisk, in the instructions for the administration of these localities (Collection of Laws, Vol. II). The purchase of land in the Amur and sea littoral districts by persons who are not Russian subjects is prohibited. Temporary rules relative to special limits for the purchase or rental of land by foreigners, as well as relative to their benefiting by estates outside the ports and other inhabited cities in some of the provinces of western Russia and in some localities of the Caucasus, are given below:

Remark 3.—The allotment of land to foreign subjects in the town of Krasnovodsk is allowed by the Minister of War upon a special representation in each case, to be made by the chief of the Transcaspien district.

SEC. 831. Foreigners, excepting Jews, may be appointed to manage, by power of attorney from the proprietors, inhabited estates, upon a clerk's license. They may also rent and occupy by lease for a period of years or in general all estates under all obligations not forbidden by law and upon observing the laws prescribed for natives of the Empire, with the exceptions prescribed in the supplement to remark 2 of section 830.

SEC. 832. The dwelling houses and warehouses of foreigners, together with all the premises thereto attached, are under the protection of the general laws. The search of their houses and the examination of the commercial books may be effected, but not otherwise than according to the laws which are prescribed and on the same conditions as for natives of the Empire.

SEC. 833. Foreigners may enter into all kinds of agreements, obligations, and contracts within the limits mentioned above, either between themselves or with Russian subjects; but in order to give these acts or deeds the proper power in Russia, they are required to observe in them all the existing regulations, both in their execution and form.

SEC. 834. Foreigners coming into Russia may freely visit the estates of other foreigners, as well as those of Russian subjects.

SEC. 835. The manner in which foreigners may inherit estates left to them in Russia is defined in the general rules prescribed for Russian subjects, with the exception stipulated in supplement 1 to remark 2 of section 830, with the observance of rules established in article 1247 of the civil code.

Chapter III.—The manner in which foreigners take Russian allegiance.

SEC. 836. In order that foreigners should become Russian subjects, their settlement within the Russian Empire is preliminarily required.

SEC. 837. Foreigners desiring to settle within the Russian Empire declare their intention to the governor of the province within which they intend to settle, stating their occupation in the country of their origin and the kind of occupation they intend to follow in Russia. Upon receipt of this declaration, the governor issues a certificate to them; from the date of their signature the applicants are recognized as having settled in Russia, remaining, however, until they have become Russian subjects, foreigners who have to submit to all existing regulations for foreigners.

SEC. 838. Foreigners who had settled in Russia up to February 10, 1864, and who have shown themselves to be beneficial to arts, industries, trade, or other social work, are allowed to prove the length of time they have resided in Russia, and otherwise than as stated in the foregoing (837) section by legal documents. The period of settlement is calculated from the day they received their first document.

SEC. 839. After a settlement of five years in Russia, a foreigner may request permission to become a Russian subject. Cases in which this term of five years is reduced are specified below in sections 848 and 850-852.

Remark.—Conventions concluded with powers on this subject remain in force.

SEC. 840. Married foreign women are not allowed to become Russian subjects separately from their husbands.

SEC. 841. The acceptance of Russian allegiance is always personal, with this exception only, as is expressed in article 855, given below, and does not extend to children already born, without distinction as to whether they are of age or still minors. Children born after their father has taken the oath of allegiance to Russia are recognized as Russian subjects.

SEC. 842. Persons who desire to become Russian subjects must present petitions to the Minister of the Interior, which must contain the following information:

(1) The place in Russia at which the applicant has lived, what his occupation is, and what certificate he may produce to show the manner of living he is accustomed to.

(2) To what class of society he desires to inscribe himself.

(3) In what town he desires to take the oath of allegiance.

(4) If he has not resided the full number of years required by law in Russia, the right on which he bases the exception he asks for.

SEC. 843. To the petition for acceptance to Russian allegiance must be attached—

(1) An act showing the rank of the petitioner made out in the form accepted in the country of his origin and attested by our diplomatic agents and Ministry for Foreign Affairs, or, when there is no Russian agent in the petitioner's country of origin, then the ministry alone.

(2) A certificate proving the final settlement of the applicant in Russia.

SEC. 844. Foreigners (males) who belong to countries where the military service is obligatory are required, when they desire to become naturalized subjects of Russia, to present, besides those certificates indicated in section 843, a certificate to the effect that they have fulfilled their military service in the country of their origin or that they have been exempted from such service.

SEC. 845. The Minister of the Interior may, upon the presentation of an application, either give his consent or refuse to allow the applicant to become a Russian subject, although he may have presented his application in due form.

Remark 1.—The governor-general of Turkestan has the right to accept to Russian allegiance subjects of the Khanates of Central Asia on the basis of conditions

stipulated in section 845, without paying attention to the provisions made in section 843 and section 844, which he may consider as not applicable to local conditions.

The governor-general must inform the Minister of War and the Minister of the Interior of the number of persons who are in this manner accepted as Russian subjects.

Remark 2.—The governor-general of the littoral of the Amur must follow the provisions of section 344 of the Siberian regulations in respect to allowing Chinese and Koreans to become Russian subjects.

SEC. 846. In order to become a Russian subject, it is necessary to take the oath of allegiance.

SEC. 847. The oath of allegiance is taken in the manner herein prescribed, each person being sworn in the presence of the governor's administrative officials in his own native tongue or in any other language familiar to him, by a member of the clergy of the applicant's religion. A protocol is drawn up attesting that the oath of allegiance has been taken, and the protocol, together with the certificate of oath, is signed by the persons sworn and by the persons present at the ceremony. Both the documents are presented by the senior official to the governor, who delivers a certificate to the applicant attesting that he is accepted as a Russian subject.

Remark 1.—Governors-general are authorized to allow foreigners, upon the presentation by them of special acceptable reasons, to be sworn in the presence of the police authorities instead of at the governor's residence.

Remark 2.—In St. Petersburg, foreigners take the oath of allegiance at the prefecture of police.

Remark 3.—In special important cases, the oath of allegiance may be taken at the Russian embassies, legations, or consulates when our foreign representatives recommend it.

SEC. 848. The term of residence in Russia required by the regulations in order to become a Russian subject may be shortened in favor of foreigners who have rendered special services to Russia or who are celebrated for their talents, sciences, etc., as well as of those foreigners who have invested large capital in Russian enterprises, upon the decision of the Minister of the Interior. All the provisions of the general rules above stipulated extend also to these foreigners.

SEC. 849. Foreigners who desire to settle on the Mourman coast are obliged to become Russian subjects and to take oath of obedience to the chief of police or the official who has charge of the peasants' affairs, and may then choose a settlement on that coast. Every foreigner, before being allowed to take the oath of allegiance, must present certificates issuing from the authorities of the country from which he originates, attesting that the applicant is free of all criminal accusation and that he is not being prosecuted for bankruptcy.

SEC. 850. Children of foreigners who are not Russian subjects, born and educated in Russia, or who, although born abroad, have passed the high degrees of sciences in Russia or the average classes of education, are allowed to become Russian subjects, should they desire it, within one year after they have attained their majority. When the above-named term of one year has not expired, such children of foreigners are admitted to take the oath of allegiance at the governor's residence, who draws up a statement of the fact, giving them the rank to which they are entitled. Such of those children of foreigners who by their education are entitled to enter the civil service may, if they desire it, be admitted into this service, upon observing the statutes of service determined by the Government, without becoming Russian subjects. In all cases where the oath of allegiance or of faithful service is taken, it is required to present the certificates stipulated for in section 844 from the foreign countries with which there exist conventions. Finally, those of the above-mentioned children of foreigners who, as stated above, do not take

the oath of allegiance nor enter service within the term of one year on attaining their majority are subjected to all the general rules established in this chapter to which all other foreigners have to submit.

SEC. 851. Upon the provisions established in the foregoing section (850), children of foreigners who have attained their majority may become Russian subjects upon the rules given in sections 836-848, or together with their parents at the same time, or during a period of one year from the time their parents became Russian subjects, upon the presentation of documents mentioned in sections 843 and 844, with the exception of the certificate of residence or settlement in Russia.

SEC. 852. Foreigners who are in the Russian service (civil), as well as clergymen of foreign religions invited by the Minister of the Interior to officiate in Russia, may, if they desire, be admitted to take the oath of allegiance at all times and without paying attention to the rules relating to the term of residence, upon the immediate consideration of their chiefs at the places where they serve. The certificates of oath of allegiance are issued in duplicate, signed by all the witnesses; one of these certificates is communicated to the local governor, the other being attached to the dossier of that department or place at which the oath was taken.

SEC. 853. A Russian subject who married a foreigner and by this act became herself a foreigner may, at the death of her husband or upon becoming divorced from him, return to her former Russian allegiance, and in this case she is bound to present to the governor of that province in which she makes choice to live the proper certificate relative to the ceasing of the marriage. The certificate delivered to the applicant by the governor serves as a proof of her return to Russian subjectation.

SEC. 854. Children of Russian subjects who marry foreigners, upon becoming widows or divorced from their husbands, must follow the rules established in section 850 in order to become Russian subjects.

SEC. 855. Foreigners who may marry Russian subjects, as well as the wives of foreigners who become Russian subjects, become by that act alone Russian subjects without being required to take the oath of allegiance. Widows, as well as divorced wives, retain the nationality of their husbands.

SEC. 856. The manner in which foreign colonists, as well as foreign workmen, are allowed to become Russian subjects, when they settle in Russia for the purpose of working the land, is determined by special rules.

SEC. 857. Foreigners who become Russian subjects enjoy by this act all the rights, and are subjected to all the obligations, attached to the rank or class to which they are enlisted, in the same manner as native Russians.

NEW RUSSIAN TARIFF.

The Department has received reports from Ambassador Tower, of St. Petersburg, and Consul Heenan, of Odessa, in regard to the new rates imposed by the Russian Government on certain imports from the United States. The order issued by the Russian Minister of Finance (published by the Senate February 2-15, 1901, to take effect March 9-22) reads:

According to the terms of remark 1 to article 628 of the custom-house regulations (Collection of Laws, Vol. VI, edition of 1892 and supplement of 1895) and of the annex to the said remark, and by virtue of the right reserved to the Minister

of Finance, in accordance with the report made to His Majesty the Emperor, dated March 31, 1900, the Minister of Finance, in agreement with the Minister for Foreign Affairs for matters coming under his jurisdiction, has decided:

I.—To apply, within the limits stipulated in the annex to article 628 of the customs regulations,* the increased tariff on products manufactured in the United States of North America, which upon their importation are included in articles 150, 151, 152, 153, 161 and section 2 of article 167 of the Customs Tariff for European Commerce.

II.—For the goods imported and classed with the articles of the customs tariff enumerated in the foregoing Paragraph I, certificates of origin must be presented to the offices of the custom-houses in conformity with the rules given below, when the said goods do not bear the manufacturers' stamp or other indications showing their origin.

The Minister of Finance has brought this decree to the notice of the existing Senate under date of January 31 (February 13), 1901, annexing thereto the rules for the certificates of origin, in order that the same may be published.

The paragraphs referred to are translated below. The 20 and 30 per cent increases imposed by the above order are included in the statement of the rates. For purposes of comparison, the former rates† are also given.

Paragraph.	Articles.	Present tariff on United States imports.		Old tariff on United States imports.	
		<i>Rubles.</i>		<i>Rubles.</i>	
150	Cast-iron wares:				
	1. Castings in the rough.....per pood ‡...	1.35	\$0.695	1.125	\$0.579
	Conventional duty.....			.90	.462
	2. Vessels of cast iron, enameled.....	1.80	.927		
	3. Cast-iron wares, filed, polished, turned, painted, bronzed, tinned, varnished, enameled (except vessels), zincked, or coated with other common metals, even combined with wood, copper, or its alloys.....	3.06	1.575		
	Conventional duty.....			2.10	1.078
	NOTE.—Section 3 applies to all wares of malleable cast iron, rough as well as finished, if the weight of each exceeds 5 funts (4½ pounds); worked wares of malleable cast iron weighing 5 funts or less must pay duty as per section 2 of paragraph 153.				
	Under section 1 of this paragraph are classed cast-iron tubes coated with rosin or asphalt, but without any other finish. The smoothing off of joints, blisters and salient parts shall not be considered as working.				
151	Manufactures of iron and steel, forged, stamped, or cast, not filed, or filed on the sides and edges only, but not otherwise wrought, forged nails.....per pood...	3.31½	1.707		
	Conventional duty.....			2.10	1.078

* This provides that "goods which form the basis of manufacture and trade in those countries which do not give Russia the most-favored privileges of import and transit are subject to the following duties, sanctioned on the 11th of June, 1891:" Thirty per cent increase of the following paragraphs (among others enumerated) of the customs tariff: 151, 152, 153, 161; and section 2 of 167. Twenty per cent increase on paragraph 150 (among others).

† In the report published in ADVANCE SHEETS No. 1000, a mistake was made by the consul in giving the former rates on United States imports, the reductions to United States currency having been improperly stated.

‡ 36.112 pounds.

Paragraph.	Articles.	Present tariff on United States imports.		Old tariff on United States imports.	
		Rubles.		Rubles.	
152	Iron and steel boiler work, such as boilers, reservoirs, tanks, cases, bridges, pipes, as well as all other articles of sheet iron or steel not especially mentioned.....	3.31½	\$1.707	2.10	\$1.078
	Conventional duty.....				
153	Manufactures of iron or steel not especially mentioned, shaped, turned, polished, bronzed, or otherwise worked, combined or not with wood, copper or its alloys, weighing—				
	1. More than 5 funts (4½ pounds) each.....	3.31½	1.707	2.10	1.078
	Conventional duty.....				
	2. Less than 5 funts (4½ pounds) each.....	5.26½	2.711	3.30	1.694
	Conventional duty.....				
	3. Padlocks and other locks except those of copper, also wood screws.....	7.80	4.017		
	NOTE.—Any kind of iron and steel binding and sheeting employed in building and for furniture is subject to duty under the corresponding section of paragraph 153, if the objects of this kind are not specially mentioned in the paragraphs of the general tariff, for which a higher duty has been imposed. Nickeling must not serve as a ground for causing manufactures of this kind to pay a higher duty.				
161	Tools for use of artists, trades, factories, and workshops.....	2.73	1.405		
	Conventional duty.....			2.10	1.078
167	Machinery, apparatus, and models thereof, complete or in parts, adjusted or not:*				
	a. Gas and water meters, motors worked by gas, hot air, or petroleum, dynamos, sewing machines, knitting machines, portable engines (with the exception of those mentioned in section 5), tenders, fire engines (except those mentioned in section 3), machines of all kinds not especially mentioned, of cast iron, iron or steel, with or without parts of other materials.....	3.31½	1.707	2.10	1.078
	Conventional duty.....				
	3. Locomotives for railroad and ordinary roads, locomotive cars, steam velocipedes, and steam fire-extinguishing hose.....per pood.....	2.00	1.03	1.80	.957
	By conventional tariff.....				
	5. Locomobiles with compound threshing machines, per pood.....	1.40		1.30	.613
	By conventional tariff.....				

* Section 2 only of this paragraph is affected.

According to a report from Consul-General Holloway, of St. Petersburg, gold-mining machinery for the Urals and Siberia, and agricultural machinery, which under a ukase of 1898 were admitted to Russian ports free of duty, are not included in the order assessing additional duties, but are still admitted free.

The Board of Trade Journal (London, March 7, 1901), in publishing the tariff changes above noted, specifies the following machinery as not affected by the new provisions, being separately tariffed: Railway locomotives and traction engines, locomotive wagons and steam wagonettes, agricultural machinery and apparatus not provided with steam motors, reaping and sheaf-binding machines, steam plows, clover threshers of a complicated system with two drums, steam threshers of a complicated system with beating drums not less than

4½ feet in width and with joint pins not less than 40 inches in width, hay scatterers, horserakes, grass-seed sorters, sorters with spiral wire cylinders, potato sorters, machines for scattering powdered manure, crushers, bellows and injectors for vineyards and trees, grape crushers, grape presses with continuous motion, centrifugal cream separators with their parts, all newly invented and improved agricultural machines and implements intended for experimental stations and museums.

The rules annexed to the decree of the Minister of Finance concerning the proofs required to attest the origin or place of exportation, in order that the goods mentioned in paragraphs 150, 151, 152, 153, 161, and section 2 of paragraph 167 of the tariff may be admitted into Russia according to the provisions specified, are as follows:

I.—As proof of origin, by which the goods may pay lower rates of import duty, are admitted—

(a) The invoices or letter of the manufacturers or owners of factories whose signatures have been attested to on the spot and bear the official seal of the Russian legations, of the Russian consuls or consular agents or of the local police authorities, or the local municipal or communal authorities.

(b) The certificates of origin delivered (*aa*) by the legations, consuls, or consular agents of Russia bearing the official seal; (*bb*) by the chambers of commerce, local authorities of the community or of the police, also bearing the official seal; or (*cc*) by the custom-house officials at the ports from which the goods are shipped, in which case the products may be admitted into Russia upon the payment of the minimum customs tariff.

II.—The documents of which mention is made in the foregoing paragraph (I) must stipulate the number of cases of merchandise, the marks and numbers which they bear, their gross and net weight, as well as the quality of the goods according to the technical or commercial denomination.

III.—One of the documents indicated in Article I, is sufficient if the goods arrive in Russia directly from the country of their origin.

IV.—Goods which do not come directly to Russia from the country of their origin, will require that—

(a) Invoices or letters of the manufacturers or owners, should indicate as stipulated for in Article I, in their original text or in duly certified copies, the marks, numbers, gross weight, the quality and quantity of the goods, and if the goods are stamped with trade-marks, a facsimile of these trade-marks;

(b) Goods proceeding from public stores at custom-houses should be supplied with a certificate bearing the official seal and attesting that the said goods having been received from the country of their origin, have been up to the time of their exportation, under the direct supervision of the said custom-house.

V.—The documents which attest the origin or the place of export of which mention is made in articles 1-4, may be presented to the Russian custom-houses at the time of the arrival of the goods, together with the bill of lading, or when making the declaration, in which case, if the party making the declaration desires to pay the minimum rate of the tariff, the country of origin must be indicated in the column reserved for the quality of the goods.

VI.—In order to pay the minimum rate of the tariff, the merchandise must be declared in conformity with the invoice or the manufacturer's letter, which accompanied it, or which has been presented with the declaration, or else it must be explained in the necessary place in the declaration what the document of origin is,

or the place of shipment of the merchandise declared; in the contrary case, the declaration is returned to the person who presented it for completion, and it is only after all the information required has been inserted in the declaration, that the goods may be admitted to pay the minimum customs tariff.

VII.—The custom-house must, in proceeding to examine the goods, convince itself that the invoices and certificates of origin correspond to the goods imported and they are authorized to proceed, in case where their doubts appear founded, to the verification of the proofs which have been presented to them and to an expert examination of the goods.

VIII.—The certificates of origin (articles 1-4) as well as the other documents attesting the payment of customs dues are sent to the respective control chambers, with the declarations which have been submitted to all the required formalities.

IX.—As a proof of the origin of goods imported by express (*colis-postaux*) are admitted: the documents indicated in articles 1-4 of the present rules, communicated to the custom-house either by declarations sent by mail, or by the receivers when they clear the goods from the custom-house.

EXPOSITION OF AUTOMOBILES AT BRUSSELS.

There has been held at Brussels annually since 1893 an exhibition of means of locomotion, which during the first few years was devoted to cycles, but this year was announced as an "exposition of new locomotion." It opened March 17 and closed March 24. In view of the increasing use of automobiles, I believe it will interest our manufacturers to know something of the machines used here, and I note a few of those exhibited.

The Pieper manufactory, of Liege, displayed, among other apparatus, an attractive vehicle of medium size, of normal speed, and of advantageous price; also an automobile boat which is expected to become very popular in this country.

The exhibit of W. Dierman & Co., of Herstal, Belgium, embraced the electromobile, Krieger system, as well as five automobiles remarkable for their speed and comfort, run by electric motors easily recharged by means of transportable accumulators.

An elaborate exhibit by the Germain Association included: A *voiturette*, 6 horsepower (easily increased to $7\frac{1}{2}$ horsepower), four back-speed treadles, three pneumatic brakes, 90 millimeters, to accelerate or reduce speed—price, 8,000 francs, or \$1,544 (this model has largely contributed toward establishing the reputation of the Daimler-Phenix motor, and more than two hundred of this make are in use in Belgium); a Duke, 6 horsepower, with pivotal back seat—price, 8,600 francs (\$1,659.80); a six-seat closed omnibus, reposing upon an extended frame, the upper part adjustable, capable of being replaced by seats, thus transforming the vehicle into an open break—price, 9,450 francs (\$1,823.85); a second omnibus

similar to the preceding, of 12 horsepower, especially designed for chateau service—price, 16,550 francs (\$3,194.15); a light automobile of 12 horsepower, two places, with four equal-sized wheels, the helicoidal blades in aluminum, frame in wood, fortified by iron bands, etc., reversible, four speeds, double lighting, and triple-degree radiator front—price, 15,600 francs (\$3,010.80).

The Germain Association also exhibited a complete series of stationary motors, ranging from 3, 4, 6, 8, 12, 16, to 18 horsepower. These are easily transported and are much sought for illuminating and agricultural purposes in country districts. There was also a motor with revolving treadle, mounted on a light body, especially designed to operate the rudder of a boat.

The "Compagnie Générale d'Automobiles," rue de Brabant, Brussels, exhibited its latest construction—a light carriage, running on four equal-sized wheels. The 5-horsepower motor is a Dion-Bouton, transmission by shaft and joints, triple speed, and double brand brake—price, 4,800 francs (\$926.40).

Guillon & Co., rue Pletinckx, Brussels, made an exhibit of useful novelties, among which I may mention a bicycle and a tricycle run by petroleum; a small trolley carriage, easily adjusted to any bicycle, and used for delivery purposes—price, 175 francs (\$33.77), and carrying capacity, 100 kilograms (220 pounds). A motor of $1\frac{1}{2}$ horsepower also attracted considerable interest, inasmuch as it can be adapted to any bicycle of good make. It weighs 12 kilograms (26.4 pounds) and costs 450 francs (\$86.85). It was one of the most attractive novelties exhibited.

GEO. W. ROOSEVELT,
Consul.

BRUSSELS, *March 28, 1901.*

BELGIAN GOVERNMENT SAVINGS BANK.

Official statistics concerning the Government savings bank show that on December 31, 1900, the number of books was 1,762,434 (against 1,647,263 in the previous year), and the amount of deposits 660,249,447.57 francs (\$127,428,143.38), an increase during the year of \$7,200,144. The capitalized interest amounted to 17,942,178.42 francs (\$3,462,840.43), which, added to the amount represented in depositors' books, made a grand total of 678,191,625.99 francs (\$130,890,983.82), belonging almost exclusively to the working class. Owing to the industrial prosperity throughout Belgium during the past two years, there was a noticeable increase in deposits; but during the past six months, on account of the strike among the glass workers in the Charleroi district, there has been a falling off.

Statistics also show that the inhabitants of the province of Hainaut are the most thrifty and saving in Belgium, as their deposits in the post-offices alone during the year just ended amounted to 101,714,836.45 francs (\$19,630,963.43).

BRUSSELS, *April 24, 1901.*

GEO. W. ROOSEVELT,
Consul.

NEW GERMAN STEAMSHIP.

The launching of the new North German Lloyd steamer *Kronprinz Wilhelm* at the Vulcan Yards, in Stettin, adds another sea leviathan to Germany's merchant marine. The engineering and mechanical details in brief are as follows: Length over all, 663 feet 4 inches; * beam, 66 feet; molded depth, 43 feet; displacement, loaded, 21,300 tons; measurement, 14,800 registered tons; maximum bunker capacity, 4,550 tons; power, 30,000 horsepower; speed, 23 knots; weight at launching, 8,950 tons.

The entire length of the ship is provided with double bottom, divided into twenty-seven water-tight compartments. Seventeen exceptionally strong bulkheads and one longitudinal bulkhead (in the engine room) divide her hull into as many water-tight compartments. Electrical connections with the chart house show what bulkhead doors are locked or open. The engines will be two quadruple expansion, six cylinders; steam will be supplied from twelve double and four single boilers, capable of working up 30,000 horsepower.

This steamer, in common with all fast German bottoms, is constructed in compliance with certain admiralty requirements, to increase her adaptability as an armed cruiser in the event of war. Steering gear, reserve steering machinery, and rudder are protected and under water line.

The ship's accommodation consists of 214 first-class staterooms with 604 berths, 102 second-class cabins with 349 berths, bunks for 702 steerage, in addition to quarters for a crew of 522, making a total of 2,177 that can be berthed and fed.

STETTIN, *April 8, 1901.*

JOHN E. KEHL,
Consul.

* The *Oceanic* is 704 feet long, the *Deutschland* 684 feet, and the *Kaiser Wilhelm der Grosse* is 649 feet long.

ENLARGEMENT OF DOCK PLANTS AT KIEL.

In consequence of the increase of traffic between the North Sea and the Baltic since the opening of the Kaiser Wilhelm Canal, an enlargement of the floating and dry dock plants at Kiel has become a necessity.

The imperial German navy possesses at present at Kiel only one floating dock and four dry docks, which have proven insufficient for the demand; therefore two more dry docks, each of 175 meters (574 feet) length, are in course of construction, so that, in the near future, the navy will own seven docks at Kiel.

The "Howaldtswerke" shipbuilding yard is enlarging its two "Schwentine" docks of 3,000 tons capacity by adding new pontoons, so that the same will in future permit the docking of vessels of as high a burden as 15,000 tons.

The "Germaniawerft," owned by Krupp, is also planning the construction of a floating dock accessible to ships of the largest type.

The necessity of an enlargement of the dock plants at Kiel is clearly proven by the fact that the German first-class battleship *Kaiser Friedrich III*, which a few weeks ago was stranded in the Baltic, can not be repaired at Kiel, as there exists at that port only one dock accessible to this class of vessels; and as the repairs would consume several months, the dock could consequently not be used for other boats. For a similar reason, the new fast cruiser *Askold*, built by the "Germaniawerft" for the Russian Government, has to be docked at Hamburg, as Kiel does not possess at present a dock of sufficient length.

HUGH PITCAIRN,
Consul.

HAMBURG, *April 20, 1901.*

GERMAN MEAT-PROHIBITION LAW.

A general order of the Prussian Secretary of the Treasury reads as follows:

Various circumstances indicate that the provision of the law with reference to the inspection of meat, to have been enforced since October 1, 1900, according to which the importation of meat in air-tight boxes or similar vessels, or of sausages and other mixtures of chopped meat was prohibited, has not been rigidly enforced by the authorities. It seems that after the above-mentioned time, meat products of such nature have been imported into the Empire contrary to this prohibition.

On the other hand, based upon an erroneous construction of the law, separate pieces of meat have been refused admission, as, for example, smoked rolled hams, which do not rightly come under this prohibition; for under paragraph 12, section 1,

of the law, in addition to canned meat and sausages, only mixtures of chopped meat, like scraped meat, head-cheese, etc., are to be included.

Doubts have also arisen whether the prohibition applies to the "passing through in transit" of the meat products mentioned therein.

In this connection, it is to be borne in mind that the meat-inspection law intends solely to protect Germany against danger in the hygienic and veterinary field. To establish a protection for foreign consumers was not intended, as is unmistakably shown by the preamble of the law. As, however, it is declared by experts that the mere passing through in transit of the goods mentioned, if it takes place at once and in bond, can cause no injury to the country, either from a hygienic or a police-veterinary standpoint, such transit under the conditions mentioned is to be deemed permissible, as well as the immediate transit of meat without the examination prescribed for imported goods, according to the explicit provision in paragraph 13, article 1, section 2. By immediate transit, only that transit is to be understood which takes place without the goods remaining in the country any longer than is required for well-ordered transportation. Incompatible with this condition, and therefore not permissible, is the deposit of goods of the kind mentioned in a transit depot under bond.

RICHARD GUENTHER,

FRANKFORT, *April 15, 1901.*

Consul-General.

UNFAVORABLE CROP PROSPECTS IN GERMANY.

The first official report giving a comprehensive statement of the condition of winter wheat, rye, and other crops on the 5th of April has just been published, and gives a discouraging outlook for German agriculturists. The winter has been long and severe, with very little snow until after the middle of February, and the spring is at least three weeks behind the average of recent years. The situation is worse in the eastern provinces of Posen, Pomerania, Brandenburg, and West Prussia, and somewhat better in the Lower Rhine region, where the soil is better adapted to withstand the vicissitudes of winter. Under the Prussian system of crop registration, the number 1 designates a full normal crop, 2 a good average, 3 under ordinary, 4 scant, and 5 practical failure. Under this method, the present average outlook for winter wheat is 3.9, against 2.8 in April of last year and 2.45 as the average of the past ten years at the same date. Of 3,699 reports from trustworthy farmers, 1,068 give the No. 5, or practical failure. No less than 26.2 per cent of the whole area is winter killed, and in fifteen districts more than a third of the winter-wheat fields are being plowed up and planted with spring wheat. This has caused an unprecedented dearth of spring wheat for seed, so that appeals are made in various quarters for Government aid in providing the poorer agriculturists with the means of making this final effort to retrieve the desperate situation. In the district of Potsdam 52.8 per cent, in Aurich 53.6 per cent,

and in the neighborhood of Köslin 89 per cent of the whole winter-wheat area is lost and will be plowed up for other crops.

Rye has fared somewhat better, and the general average is 3, or about the same as last year, although in some eastern districts the report is as low as 4.4 and 4.5, where at Bromberg and Marienwerder 18.6 and 20 per cent respectively of the rye fields are winter killed.

Clover shows a general average of 3.3, and 5.4 per cent of all the clover fields of Germany have been destroyed by the severe, snowless winter. This discouraging report, coming as it does at a moment when the proposed increase of import duties on cereals is under discussion, is likely to exert an important influence against the policy which in a period of lagging activity and diminished prices for industrial products would enhance the cost of bread for the laboring classes.

FRANK H. MASON,
Consul-General.

BERLIN, *April 22, 1901.*

WOOLEN YARNS IN GERMANY.

Owing to the present crisis in the woolen industries in this Empire, it is not surprising that both the import and export of yarns have shown a decline in comparison with the preceding year. The imports of woolen yarns in 1900 amounted to 247,496 double cwts. (54,561,868 pounds), valued at 106,007,000 marks (\$25,229,666), against 264,558 double cwts. (68,202,760 pounds), valued at 113,361,000 marks (\$26,979,918), in 1899. According to these figures, the imports decreased in weight to the extent of 27,062 double cwts. (5,953,640 pounds), or 10.2 per cent, while in value the decrease amounted to 7,354,000 marks (\$1,750,252), or 6.5 per cent. The reason for this is evident. The output of the German wool weavers was partially restricted, and the augmented demand for stitched and knitted goods was not sufficient to compensate for the decline. The principal purveyor of woolen yarns was England, which alone shipped to Germany no less than 207,580 double cwts. (45,667,600 pounds), or 83.9 per cent of the total German imports in these goods; 19,070 double cwts. (4,195,406 pounds), or 7.7 per cent, came from Belgium; France sent 8,969 double cwts. (1,973,180 pounds), or 3.3 per cent; Switzerland figured for 5,749 double cwts. (1,264,780 pounds), or 2.3 per cent; and Austria-Hungary for 5,651 double cwts. (1,243,220 pounds), or 2.2 per cent.

The export of woolen yarns from Germany amounted in 1900 to 88,301 double cwts. (19,426,220 pounds), valued at 56,984,000 marks (\$13,562,192), against 88,994 double cwts. (19,578,680 pounds),

valued at 57,316,000 marks (\$13,641,208), in the preceding year—a decrease in weight amounting to 6,930 double cwts. (1,524,600 pounds), or three-fourths of 1 per cent, and in value of 332,000 marks (\$79,016), or one-half of 1 per cent. The difference in the percentage of weight and value shows that last year woolen yarns were very low in price, compared with the previous twelve months.

The following countries are especially noticeable in connection with the export of German woolen yarns, the quantities and percentages being given:

Country.	Quantity.		Per cent.
	<i>Dble. cwts.</i>	<i>Pounds.</i>	
Austria-Hungary.....	21,187	4,661,340	24
England.....	17,169	3,777,180	19.4
Sweden.....	8,740	1,924,780	9.9
Russia.....	7,999	1,759,780	9
Japan.....	5,862	1,289,640	6.6
Switzerland.....	3,654	803,880	4.1
Denmark.....	2,914	641,080	3.3
Finland.....	2,369	521,180	2.6
Norway.....	1,879	411,180	2.2
China.....	1,847	406,340	2.1
Netherlands.....	1,782	392,040	2
Argentina.....	1,616	355,520	1.8
British East India.....	1,458	320,760	1.6
Belgium.....	896	197,120	1
United States.....	878	193,060	1

Although in 1900 the import of woolen yarns exceeded the exports by 159,195 double cwts. (35,022,900 pounds), and the value of such imports was 50,023,000 marks (\$11,905,474) more than that of the exports—which, in view of the recognized capabilities of the German worsted-yarn and carded-wool spinning mills, is certainly an unpleasant contrast; nevertheless, the difference between import and export is being gradually reduced.

GEO. SAWTER,
Consul.

GLAUCHAU, *March 12, 1901.*

ALCOHOL VS. COAL IN GERMANY.

Consul-General Guenther, of Frankfort, under date of April 25, 1901, reports as follows:

According to a German technical publication, alcohol can not be profitably used for making steam.

One kilogram (2.2046 pounds) of coal, costing 2½ pfennigs (0.6 cent), the paper says, produces from 7,000 to 8,000 caloric units, while 1 kilogram of alcohol, valued at 22 pfennigs (5 cents), pro-

duces only 6,000 units. In spite of the number of good alcohol lamps on the market, alcohol is only used where a very strong light is necessary without reference to economy. Only in one instance is alcohol preferable to coal or benzine, and that is in motors run on the explosion principle. Alcohol leaves no residue in the motor and from 23 to 24 per cent of its heating power is utilized, while steam utilizes only 13 per cent, and benzine, petroleum, and gas from 14 to 18 per cent.

The article adds:

As the number of minor establishments requiring relatively small power is constantly growing, alcohol motors are in demand. The automobile industry has lately given preference to alcohol motors, especially in the construction of freight automobiles. The price, in Germany, of alcohol for motor purposes is at present \$4.50 for 110 quarts.

IMPROVED GERMAN LIFE-SAVING APPARATUS.

Consul-General Guenther, of Frankfort, March 20, 1901, informs the Department of a recent improvement in the means for saving life at sea.

It has often happened, says the consul-general, that on account of darkness, life belts could not be seen when thrown to persons who had fallen overboard at night. Buoys with life belts, attached and supplied with 8-candlepower electric lights have been constructed heretofore, but their use was confined to vessels equipped with electric-lighting plants, and their heavy weight, requiring three or four men to handle them, was a serious handicap.

The new apparatus weighs but 33 pounds and produces a light equal to 150 candlepower. The buoy is of a globular form, carries from two to four life belts, and supports a long cylinder of sheet tin having twelve compartments filled with carbide of calcium. These compartments are arranged at different elevations. When the apparatus is thrown into the sea, the water passes through perforations in the bottom of the cylinder and, coming in contact with the carbide, generates acetylene gas. Each compartment is connected with a burner by a pipe, proper valves preventing the escape of the gas other than through the burner. When the volume of gas in the cylinder decreases, hydrostatic pressure opens the valves and allows water to enter the next compartment to generate an additional supply of gas. The gas is lighted electrically, and ignition takes place in about twenty-five seconds after the buoy is thrown into the sea. The flame is protected from the wind by glass and burns steadily and with great intensity for three or four hours.

Cleaning and filling the apparatus requires only a few minutes. The cost of a charge is about 12 cents.

The advantages claimed for the invention, adds Mr. Guenther, are: First, that it can be used on all kinds of vessels; second, that it may be used for general lighting purposes; third, its cheapness and light weight.

GERMANY'S FOREIGN COMMERCE, 1900.

The secretary of embassy at Berlin, Mr. Jackson, under date of April 18, 1901, sends the following statistics in regard to Germany's foreign commerce during the calendar year 1900, compiled from tables published in the *Reichs-Anzeiger* of April 16, 1901.

Germany's trade with foreign countries was:

Description.	1900.		1899.		Increase.
	<i>Marks.</i>		<i>Marks.</i>		
Imports	6,942,992,000	\$1,438,232,096	5,783,628,000	\$1,376,593,464	\$61,728,632
Exports	4,752,601,000	1,131,119,038	4,368,409,000	1,039,681,342	91,437,696
Total	10,795,593,000	2,569,351,134	10,152,037,000	2,416,184,806	153,166,328

By countries, the trade in 1900 was:

Country.	Imports.		Exports.		Total.
	<i>Marks.</i>		<i>Marks.</i>		
Great Britain.....	840,661,000	\$200,077,318	912,219,000	\$217,108,122	\$417,185,440
United States.....	1,020,764,000	242,941,832	439,653,000	104,637,414	347,579,246
Austria-Hungary ...	724,332,000	172,391,016	510,730,000	121,553,740	293,944,756
Russia	716,535,000	170,535,330	324,880,000	77,323,582	247,858,912
Total	3,302,292,000	785,945,496	2,187,491,000	520,622,858	1,306,568,354

Germany's total trade with the four countries mentioned amounts to more than her trade with all the rest of the world, while her exports to these countries represent less than 50 per cent of her total export trade.

The value of the exports to Russia in 1900 was considerably less than it was in the preceding year, being exceeded for 1900 by the value of the exports (amounting to 395,868,000 marks=\$94,216,584) to the Netherlands. The United States is again at the head of the list as regards imports into Germany, the exports to that country, however, being less than 50 per cent of the exports to Great Britain, putting the United States again in the second place as regards the

total volume of foreign commerce. During the year 1900, both the import and export of precious metals decreased.

Germany's trade with all her colonies and protectorates, with the Philippines, with nearly all the South American countries (except Chile), and with Mexico increased materially in 1900.

WATER ROUTE FROM FIUME TO STETTIN.

The Hungarian Ministry of Commerce is engaged with plans for an all-water connection between Fiume, the Hungarian seaport on the Adriatic, and Stettin, a German seaport on the Baltic. The plans contemplate the joining of the Oder and the Danube rivers by a canal. Stettin is at the mouth of the Oder, which rises in the Austrian province of Moravia, at no great distance from the Danube, to which a canal can be constructed through a connecting valley. From the Danube, the route will lead through an existing canal to the Save River, which parallels the Danube, and thence via the Kulpa River to Fiume.

This new route will, of course, be to the advantage of goods sent by freight, the rates by water being but a small fraction of those by rail.

This project is another indication of the progressive spirit that is moving Hungary toward commercial independence.

FRANK W. MAHIN,
Consul.

REICHENBERG, *March 27, 1901.*

CORN IN THE NETHERLANDS.

Mr. Morris Weill, who was cook in the corn kitchen at Paris, writes me as follows, in regard to the opening for corn in the Netherlands:

The demand for it is rather large, as it is used for many purposes, as for making beer, gin, etc.; but the climate here not being warm enough to ripen it, it must be imported, generally from the United States. Some farmers may grow it, but they use it for feeding their cattle and poultry.

Cornstarch and maizena have been known here for years and are largely used for manufacturing purposes. At the Zaan, the country of windmills, near Amsterdam, there are a number of factories using corn.

Maizena is used here, as in the United States, for desserts. Corn flour is used here also, but I believe not in large quantity. Some bakers use it for mixing with wheat flour.

The use of corn as human food is not known here; and, in my opinion, the

people will not adopt it easily. They eat rice, beans, potatoes, and barley. If the potato crop is poor, the workmen complain, because everything rises in price. Although corn-meal grits, hominy, etc., are delicious and wholesome, the Dutch do not know how to prepare it, and claim it is indigestible. Green corn is almost unknown here; it gets too dry during the voyage. Canned sugar corn is also almost unknown, partly because of the high tariff on canned goods in the Netherlands. A can of sugar corn, costing 7 or 8 cents in the United States, sells here at 1 florin (40.2 cents). Pop corn is gradually getting to be known. At the annual county fairs, little wagons can be seen selling it for a few cents to children. My opinion is that if some American would make pop-corn balls and sell them here in the usual American way, by sending out samples, he might succeed in introducing them for the use of children.

The secretary of the chamber of commerce has generously, in advance of publication of his annual report for 1901, given me the following figures respecting imports of maize for 1900:

Whence imported.	Netherlands.		Amsterdam.	
	<i>Kilograms.</i>	<i>Pounds.</i>	<i>Kilograms.</i>	<i>Pounds.</i>
United States.....	470,770,000	1,035,604,000	101,330,417	222,926,917
Belgium.....	194,889,000	428,755,800		
Rio de la Plata.....	24,361,000	53,594,200		
Roumania.....	20,190,000	44,418,000		
Russia.....	19,645,000	43,219,000	558,400	1,228,480
Prussia.....			51	112
Hamburg.....			262,749	578,048
Danubian principalities.....			494,000	1,086,800
All other countries.....	657,000	1,446,500		
Total.....	730,512,000	1,607,127,500	103,101,617	225,820,357

FRANK D. HILL,
Consul.

AMSTERDAM, *April 9, 1901.*

LIVERPOOL MEDICAL FELLOWSHIP OPEN TO AMERICANS.

A prominent Liverpool shipowner, well known in the United States, has just founded an "international fellowship" in University College, Liverpool, open for competition by members of American universities and medical schools. The following are the provisional regulations governing the fellowship:

(1) This fellowship has been founded by William Johnston, shipowner, of Liverpool, to commemorate the late John W. Garrett, of Baltimore, United States, and shall be called "The John W. Garrett International Fellowship in Pathology and Physiology." The value of the fellowship shall be \$186 (£100) a year.

(2) The fellowship shall be open to members of universities and medical schools in the United States, without, however, absolutely precluding members of other foreign schools.

(3) The fellow shall be elected by the faculty, on the nomination of the professors of pathology and physiology.

(4) The fellow shall be elected for one year and shall be eligible for reelection.

(5) The fellow shall devote himself to research in physiology or pathology and bacteriology under the direction of the professors of physiology and pathology. He shall undertake no work which shall in any way interfere with these duties.

(6) The work shall be done in the Thompson-Yates laboratories of University College, Liverpool, but by special permission from the faculty, the fellow may be allowed to follow his investigations elsewhere.

(7) The expenses of the research shall be met out of the funds of the laboratory under the direction of the professors of physiology and pathology.

Mr. Johnston has also founded a "colonial fellowship" in pathology and bacteriology, of the same value as the "international fellowship," open to members of British colonial universities and medical colleges.

JAMES BOYLE,
Consul.

LIVERPOOL, *April 12, 1901.*

LONDON MARKET FOR SALMON.

There is not a large demand for frozen salmon in the London market. The people do not care very much for anything frozen. Liverpool and north country markets do a much larger business in frozen salmon than this city. The salmon realizes from 4d. to 6d. (8 to 12 cents) per pound wholesale in London. It is sent to England principally from Canada. Each fish is frozen and wrapped in paper; they are then packed in cases and brought to London in the ships' refrigerators. On arrival, the cases are placed in refrigerators on a charge of a certain sum per month, being taken out daily for sale, according to demand. The daily sale of frozen salmon in London does not average 10 cases in all.

FRESH SALMON FROM NORWAY.

Fresh—not frozen—salmon has been sent from Norway to England for several years. Each year it arrives in better condition, viz, better quality and brighter looking fish, and realizes higher prices. Last year, Norwegian salmon realized from 8d. to 1s. 6d. (16 to 36 cents) per pound. It is packed in large cases, with a plentiful supply of ice. The fish most in demand weigh from 8 to 14 pounds each. It takes about fourteen days from the time the salmon is caught in Norway until it arrives in London. Is it not possible to send American salmon (fresh fish) to London within the time it takes Norwegian senders to catch salmon and deliver it here? Is it not worth while to venture two or three cases on trial? If successful, a large business could be done during the salmon season.

WM. M. OSBORNE,
Consul-General.

LONDON, *April 16, 1901.*

NOTES.

The World's Consumption of Cotton Yarn.—Deputy Consul-General Hanauer transmits from Frankfort, April 23, 1901, the following statement of the consumption of cotton in various countries, rendered at a recent meeting of German spinners at Leipzig:

Country.	Spindles employed.	Cotton consumed.
	<i>Number.</i>	<i>Bales.</i>
United States.....	19,300,000	3,600,000
Canada	500,000	100,000
Mexico.....	500,000	18,000
East Indies.....	4,800,000	
Japan	1,200,000	2,000,000
China	450,000	
Great Britain.....	15,000,000	3,300,000
Germany.....	8,000,000	1,400,000
Russia	7,500,000	1,200,000
France.....	5,500,000	550,000
Austria.....	3,500,000	750,000
Spain	2,800,000	450,000
Switzerland.....	1,550,000	150,000
Belgium	1,000,000	180,000
Sweden	400,000	100,000
Holland.....	300,000	75,000
Italy.....	200,000	450,000
Portugal and Greece.....	300,000	75,000

The world's consumption of cotton is estimated at about 14,000,000 bales.

Demand for Railway Equipment in Italy.—Under date of April 29, 1901, Consul-General Guenther, of Frankfort, says that according to the *Secolo*, the plan for an increase in the rolling stock of the Midland Railroad of Italy has been approved. This plan, says the paper, contemplates the purchase of 30 locomotives, 40 passenger cars of the second class, 90 freight cars, 46 reservoir cars, 50 freight cars (flat cars), and 18 bogie cars, at a total cost of \$1,782,000. The rolling material to be abandoned will be replaced or renewed by 32 locomotives without, and 14 with, tenders; 2 parlor cars, 30 passenger cars of the first class, and 50 of the third class; 2 bogie cars and 70 closed and 30 open freight cars. For these, \$1,474,500 will be appropriated. Advertisements for bids will be published in the near future. The material must be delivered within

from seven to ten months. Eight hundred and fifty cars will also have to be provided for the Midland Railroad to replace those which heretofore have been leased. The Government, however, has not yet arrived at a decision in regard to this last proposition, but will have to do so shortly, as the leases expire this fall.

Olive Oil in Spain.—Consul Hughes sends from Coburg the following translation of an article in *Nachrichten für Handel und Industrie*, Berlin:

Olives are cultivated in thirty-three provinces of Spain, the most extensive groves being in Jaén, Cordoba, and Seville. The total number of hectares under cultivation is 1,153,827 (2,851,106 acres), of which 71,650 hectares are irrigated. The average yearly production amounts to 2,976,384 hectoliters (8,452,930 bushels), valued at 195,427,017 pesetas (\$30,095,760). The following table shows the provinces principally engaged in cultivating olives, and the average yield and value of the crop in each:

Province.	Production.	Value.	
		Hectoliters.	Pesetas.
Jaén.....	583,737	37,912,067	\$5,236,458
Cordoba.....	586,706	36,973,232	5,693,878
Seville.....	433,169	27,692,741	4,264,682
Tarragona.....	157,403	10,959,627	1,687,781
Lérida.....	160,286	10,458,395	1,610,503

In 1899, the total harvest yielded 7,625,050 double centners, from which 7,337,674 hectoliters (193,614,593 gallons) of olive oil were produced.

Electric Cars for Rapid Transit.—Consul-General Guenther writes from Frankfort, April 15, 1901:

The association for the study of electric rapid-transit railroads has issued its report for 1900. Among other things, it is stated that the elevated track of the military road between Berlin and Zossen, upon which experiments will soon be made, has been carefully inspected and strengthened. It is hoped to attain a speed of 125 miles per hour. Two cars will be employed, which are supplied with the strong machines required and will hold from forty to fifty passengers. The construction of the cars and their equipment differ, in order to make manifold experiments. Each car will have four motors, aggregating from 1,100 to 3,000 horsepower; two three-axle movable trucks; and the necessary transmuters, switching appa-

ratus, etc. The cars will be $71\frac{1}{2}$ feet long and will weigh about 90 tons. The effect of this speed on the elevated track will also be noted. The experiments will doubtless prove of the highest importance for the improvement of rapid transit, although it may be found that the speed contemplated will not be feasible.

Demand for Wire Screening in Egypt.—Consul-General Guenther, of Frankfort, April 9, 1901, says that, according to the French Chamber of Commerce of Alexandria, Egypt consumes a large amount of hexagonal-mesh, galvanized steel-wire screening, furnished by England, France, and Germany. The following are the sizes in greatest demand, with prices, including packing in paper and linen, f. o. b. Alexandria:

Width of mesh.		Size of wire (Paris scale).	Cost per roll of 50 meters (164.04 feet).	
<i>Millimeters.</i>	<i>Inches.</i>		<i>Francs.</i>	
13	0.4922	4	70.40	\$13.50
16	0.6304	5	70.00	13.51
19	0.7486	7	56.00	10.81
25	0.985	7	40.70	7.86
32	1.2608	7	32.50	6.27
41	1.6154	11	40.70	7.86
51	2.0004	11	35.00	6.76

The consul adds that samples should accompany price lists and catalogues.

Traffic of the Sudan.—Under date of March 29, 1901, Consul-General Guenther, of Frankfort, says:

According to Paris reports, the commerce of the Sudan in 1900 has been very favorable, although the projected railroad, which will connect the North African coast with the interior, has not yet been completed. Commerce moves by caravan in the direction of Tripoli and Morocco.

Linen fabrics come mostly from Austria, as does also sugar, which is shipped in powdered form in water-tight sacks.

Cotton goods are mostly of English manufacture.

Perfumeries are an important article of commerce, imported by a Bulgarian house from German firms in Leipzig. One caravan recently contained \$4,000 worth of such perfumeries.

Tea is also in much demand. Notions and tinware, nails, chains, locks, iron and brass wire, and copper bars of medium size are mostly of German origin. The caravans also carry jewelry from Austria, Germany, and Italy.

Density of Population of Foreign Countries.—Consul-General Guenther writes from Frankfort, April 26, 1901:

The Cologne Gazette recently published the following figures of the population of various countries and number of persons per square kilometer, based upon the latest census taken:

Country.	Year.	Population.	Per square kilometer.*
Russia.....	1897	128,961,631	5.9
United States.....	1900	76,215,180	8.4
German Empire.....	1900	56,345,014	104.2
Japan.....	1898	43,760,754	114.4
Great Britain and Ireland.....	1900	40,900,025	132
France.....	1898	38,745,000	73.2
Italy.....	1898	31,573,582	106.6
Austria.....	1900	26,107,304	87
Hungary.....	1900	19,203,531	59.6
Spain.....	1897	18,089,500	35.9

* 1 square kilometer=0.3861 square mile.

New Smelter in British Columbia.—Consul Dudley, of Vancouver, under date of May 15, 1901, writes as follows:

Referring to my report of March 13, 1901,* I give below extracts from a letter received from Mr. A. T. Garland, secretary of the Kaslo Smelter, Limited:

We have now the following concessions, etc., to turn over to capitalists, who will engage in the necessary work and fulfill the considerations satisfactorily to the present directors of the company: (1) Bonus from the city, \$50,000; (2) exemption from municipal taxation for a term of ten years; (3) good site of 20 acres, with At harbor, on Kootenai Lake; (4) water rights, with abundance of fall, conveniently situated for power purposes.

Coal and coke can be laid down cheaply at the smelter site. Wood and timber are most conveniently placed. Lime for fluxing is obtainable in inexhaustible quantities along the lake shore and can be loaded on barges at a nominal figure.

Our engineer assures us that the supply of dry ores necessary for fluxing the lead ores of our district can be easily obtained.

For shipping facilities, our location is admirable. We are in direct connection by steamers on an open-all-the-year-round water way, Kootenai Lake, with the two great transcontinental lines, the Canadian Pacific and the Great Northern.

In arranging with capitalists, we would expect the present stockholders to be either recouped for the amount so far expended, or that they would hold their stocks in any company which would deal on our holdings.

The present company is acting in the interest of the citizens of the town, who have subscribed for enough capital stock to meet preliminary expenses.

*ADVANCE SHEETS NO. 999 (April 1, 1901); CONSULAR REPORTS NO. 248 (May, 1901).

American Coal in Japan.—Under date of April 6, 1901, Consul Lyon, of Hiogo, sends a newspaper clipping giving an extract from a recent report of the British consul at Nagasaki, as follows:

Early in 1899, an experimental cargo of the United States steam coal known as Pocahontas was imported from Philadelphia and sold to the United States and German navies. By the engineers of the latter, it was at first received with strong disfavor, its appearance as compared with that of Cardiff coal not commending it; but its trials on use proved so eminently satisfactory that a further cargo now on its way has been bought by them in advance. As Cardiff coal can not now be purchased in Nagasaki at much less than 90s. (\$21.57) per ton, while the price of the Pocahontas is only 60s. (\$14.18), any quantity of the latter will no doubt find a ready sale. It possesses most of the advantages of Cardiff, being smokeless, containing a very high percentage of pure carbon, a correspondingly low percentage of ash, and in addition it is much more cleanly to handle. As an economical steaming coal, experts find that it is little if at all inferior to the best qualities coming from the Welsh collieries; and if the present high prices continue to be maintained at the latter, there can be no doubt that the Pocahontas will soon take its place to a large extent as the fuel of navies in the East.

Increased Tariff in Costa Rica.*—Minister Merry writes from San José, May 4, 1901:

The Government of Costa Rica has issued a decree increasing the duties on all importations into the Republic after April 28, 1901, 50 per cent. The announcement is accompanied with the suggestion that, as an offset to this additional duty, it will be the policy of the Government to reduce the export tax on coffee. The importation of foreign products during the last half of the year 1900 has been comparatively heavy, and while the revenue may not at first be greatly increased by the decree, it will induce an economy among the people which should be an advantage to the country. Costa Rica needs, above all things, a diversity of production which will decrease her dependence upon any leading article. While this necessity is generally recognized, little progress has thus far been made in this direction, although the abundant natural resources of the country admit of many other valuable products, among them cacao, india rubber, textile fibers, tropical fruits, etc. The banana industry is being rapidly developed and also the planting of india-rubber trees, the latter, however, requiring six to eight years before profitable results can be expected.

Customs Decrees in Mexico.—Consul Canada, of Veracruz, May 6, 1901, states that an executive decree has been issued by the President of the Republic of Mexico, authorizing collectors of

*The Department has received a report from Consul Caldwell, of San José, covering the same information.

customs at the principal ports on the Atlantic and Pacific coasts to grant permission to vessels (without restriction as to nationality or tonnage) to proceed with cargo to, and discharge same at, points on the coast of Mexico where no custom-houses exist or custom officers are stationed. This decree, says the consul, has been issued for the purpose of aiding commerce and accommodating the inhabitants of the lesser important places. If the cargo is of Mexican origin, or has been naturalized by having once paid duty, there is no limit to the amount, and the vessel may carry to its full capacity; but where the cargo is foreign, the amount is fixed by the duty on same—that is to say, the duty on the cargo must not be more than \$2,000 Mexican currency.

The consul adds that another executive decree has been promulgated, which exempts consular invoices covering coin of any country, or bank notes of any of the banks established under a state or federal law in the Republic of Mexico, from the consular fee, provided no other merchandise is covered by said invoice.

Tariff Changes in Venezuela.—Consul Goldschmidt, of La Guayra, May 1, 1901, sends translations of recent executive decrees, as follows:

ADDITIONAL IMPORT DUTIES.

ARTICLE 1. Beginning with May 1 next, there shall be charged in all custom-houses a transit duty of 25 per cent of the taxes which each importer pays.*

ART. 2. Out of the proceeds of this 25 per cent, there shall be paid 20 per cent to the States of the Union as revenue assigned by the constitution and 5 per cent to public works.

REDUCTION OF EXPORT DUTIES.

Whereas coffee is cheapened in foreign markets by abundant crops of other countries, causing depression among our agricultural interests, and whereas it is desired to develop the cultivation of cacao, the exports of cattle, and the planting of cotton, it is decreed:

ARTICLE 1. Beginning the 1st of May next the territorial duties, which by decree of October 3, 1900, were placed on coffee, cacao, cattle, and cotton, are abolished.

Dominican Export Duties Abolished.—The Department has received from Consul-General Maxwell, of Santo Domingo, under date of April 17, 1901, copy of a message of the President to Congress regarding the suppression of export duties. In compliance with this message, a law, taking effect May 1, 1901, has been enacted abolishing the duty on all articles of export. The annual revenues from export duties, adds Mr. Maxwell, amounted to about

* NOTE BY CONSUL.—These duties were formerly 12½ per cent.

one-fourth of the total income of the Republic. The statistics for 1900 furnished by the Minister of the Treasury and Commerce give the following favorable figures: Import duties, \$1,756,266.19; export duties, \$635,785.55. Deducting from the export duties \$130,491.85 for the differential duties, there remains \$505,293.70. Taking the revenue for the first three months of 1901 (\$697,654.05) as a basis, the revenue for the year may be estimated at \$2,285,322.50, from which, deducting the export duty of \$505,293.70, there remains \$2,285,322.50, with which sum the Government can meet its estimated expenses and most pressing obligations.

Trade Opportunities in Mexico.—The following translation from a German paper is sent by Vice-Consul-General Murphy, of Frankfort, April 6, 1901:

The demand for corrugated iron is growing rapidly in Mexico, the amount imported having increased from £85,750 in 1898 to £127,750 (\$417,260 to \$621,632) in 1899. This article is supplied chiefly by Great Britain, the United States, and Germany. Competition is sharp, and those firms secure the orders which are able to fill them most promptly and cheaply. The demand is not limited to the City of Mexico, but exists in all parts of the Republic.

There is also an active demand for—

(1) Agricultural machines and implements. These are supplied chiefly by the United States at present. In making deliveries, it is advisable to furnish duplicates of breakable parts.

(2) Machines and tools for mines. There is a good opening for the sale of these articles, although many American agencies have already been established.

(3) Pumps and other appliances for removing water from mines.

(4) Building tools, cutlery, and all sorts of iron and steel wares of good quality; also chirurgical instruments.

(5) Paints and lacquer.

(6) Glass, porcelain, and faience wares; fancy articles of leather—for example, pocketbooks, card cases, etc. These articles must, however, be finished in accordance with the demands of local taste.

German Settlements in South Brazil.—Vice-Consul-General Murphy transmits from Frankfort, April 6, 1901, translation of an article in a Berlin paper, as follows:

Reports of a contradictory character have from time to time been received in Germany relative to the actual condition of the German settlements in southern Brazil. It is, however, beyond doubt that a large number of Germans have settled there, and that their colonies are prospering and growing. Unfavorable reports in regard to political and industrial difficulties encountered by German settlers in Brazil continue, however, to interfere with the thorough and carefully formulated

plans of the Hanseatic Colonization Company, whose work is being accomplished more slowly than is demanded by the interests of these German colonies, which are so closely connected with Germany by racial ties. A new handbook for emigrants, entitled *German Colonial Life in the State of San Catharina, in South Brazil*, will, it is believed, remove all doubts in regard to this portion of South America, where already almost one-third of the population is German. From this book, it appears that at present the German colony "Hansa" offers special attractions to settlers. The German colonists live in settlements of their own, which are governed by officials who are Germans.

Cement for South Africa.—Consul-General Guenther writes from Frankfort, April 15, 1901:

According to official reports, South Africa is a good market for cement. All public buildings, stores, and dwellings are coated with cement. There are very few wooden buildings erected. The masons in South Africa are mostly Malays. They are skilled in their trade and do the work very neatly. Cement is also largely used in the construction of aqueducts, wharves, chimneys, walls, etc. While the principal import of cement is from Great Britain, considerable quantities are also imported from Belgium and Germany, the latter, on account of its cheapness, increasing. Belgium cement is of good quality and as cheap as the English article. The reports state that American cement could compete well, as transportation from our country is not higher than from Europe. Cement can not be manufactured in South Africa, for lack of raw material.

Business Firms in Switzerland.—Consul Morgan writes from Aarau, April 10, 1901:

Nearly every mail which comes to this office brings letters from American manufacturers and exporters asking for names and addresses of firms doing business in Switzerland, presumably for the purpose of sending out circulars, etc. While this office is always willing to comply with the request, it often happens that the firms doing business in the particular line requested are so numerous that it is only possible to give a relatively small number of names. I would suggest that those desiring the information as above set forth should purchase the *Registre du Commerce*, which is published annually and contains the name and address of every business house in Switzerland, and is so arranged in one part of the volume that the different lines of business are grouped under separate headings for ready reference. The cost of the Register is \$2 and it can be obtained from any bookseller in Switzerland.

German Potatoes for America.—Consul Warner reports from Leipzig, April 16, 1901:

Potatoes are being exported from this section to the United States for the first time this year. So far, the shipments made have been small, but the indications are that the volume will increase. Orders for next season are heavy. The German potatoes are smaller than ours. Those exported are known to the trade as "old potatoes" and are to be used almost entirely by the large hotels for making potato salad. Americans should supply this demand by purchasing seed potatoes here and raising them at home. They could be sold at a greater profit than is made on the potatoes now grown, as the Germans can afford to raise them, pay freightage and our import duty of 25 cents a bushel, and still find the business remunerative.

Demand for Electric Machinery in Spain.—Consul-General Guenther, of Frankfort, under date of April 27, 1901, says that, according to Informations et renseignements de l'office national du commerce exterieur, a new electrical company, the "Sociedad General Gallego de Electricidad," has just been formed in Madrid, Spain, with a capital of 2,000,000 pesetas, and two of its engineers, Messrs. Ernesto Presser and Adolfo Barbe, of Madrid, have been instructed to procure the necessary machinery, etc.

According to the same publication, another company has also been formed at Saragossa—the "Sociedad de Aprovechamiento del Rio Gallegos"—with a capital of 3,500,000 pesetas. This company will require a great deal of machinery and apparatus.

New Electric Railroad in Russia.—Consul-General Guenther sends the following, dated Frankfort, April 30, 1901:

The first electric suburban railroad in Russia was opened for traffic this year. It connects the manufacturing city of Lodz, in Russian Poland, with the neighboring towns of Zgierz and Pabianice, and is $13\frac{1}{2}$ miles in length. The Thompson-Houston motors used were furnished by the Russian Electricity Union. The road is owned by a company of Polish merchants and manufacturers, and was built at a cost of \$560,000. The charter provides that the Government shall receive a share of the profits, and shall have the right to purchase after twenty years; and that the road and all equipment shall become the property of the Government at the expiration of twenty-eight years.

Remodeling Russian Harbors.—Under date of May 1, 1901, Consul-General Guenther, of Frankfort, reports that the Russian Government has concluded to remodel the harbor works at St. Petersburg and Cronstadt, to conform with modern requirements. The consul-general adds that it is also contemplated to separate the naval from the commercial harbors. Cronstadt will become a naval port only, and will be closed to merchant vessels, while St. Petersburg will be the commercial harbor. On the Black Sea, the commercial harbor at Sebastopol will be removed to Feodosia.

New Railroad Bridge in Russia.—Consul Hughes, of Coburg, April 26, 1901, says that, according to Russian official publications, the old wooden boat bridge over the Amu Davja, on the Middle Asiatic Railroad, near Tschardjni, will be replaced by an iron bridge 5,000 feet in length. The new structure, continues the consul, is to be built in such a way as to prevent the river from shifting the bridge foundations. According to the plans published, there are to be 24 piers, each about 185 feet apart. The total weight of the structure will be about 5,190 tons, and, it is estimated, the cost will be about \$2,558,500. The consul suggests that this may be an opportunity for American bridge builders, if immediate action is taken.

Cotton in Russia.—Deputy Consul-General Hanauer writes from Frankfort, April 22, 1901:

Russia is one of the few states which put a duty on imported cotton, and this is heavier (3.15 rubles per pood) than that levied in most countries. This is equivalent to almost \$5 per 110 pounds and amounts to about two-thirds of the value of the staple. Owing to this tax, the importation of cotton diminished by nearly 2,000,000 poods (72,224,000 pounds) in 1899, while the production of raw cotton in Russian central Asia increased 34 per cent in the same year, 24,300,000 poods (877,521,600 pounds) being raised. Grain fields in that territory are now planted with cotton, as the cultivation of the fiber is much more profitable than that of wheat. Russia, it may be expected, will soon supply her own needs in cotton.

Caspian-Black Sea Canal.—Consul Hughes, of Coburg, April 12, 1901, informs the Department that a canal to unite the Caspian and Black seas is under consideration. The projected water way will be 22 feet deep and about 150 feet broad; will begin at Astrakhan,

on the Caspian, and end at the harbor of Taganrog, on the Sea of Azof. It is estimated that the cost will be about 40,000,000 rubles (\$20,600,000). The center of Russian trade and manufacture, adds the consul, is gradually shifting southward, where the production of iron, coal, and petroleum is rapidly increasing. The metallurgical industries and the trade in cotton from middle Asia are also being largely developed. The railroads at times prove insufficient carriers, and the construction of other roads and the digging of this canal will be necessary in the near future to meet the growing demands of commerce.

Manufacture of Celluloid in France.—Consul Hughes, of Coburg, under date of April 12, 1901, writes as follows:

Celluloid has always been manufactured by dissolving nitrocellulose in camphor—that is to say, forming a mixture of nitrocellulose, camphor, and alcohol. But there are other ways of mixing it. According to a publication of the Société Générale pour la fabrication des matières plastiques de Paris, celluloid can be made by using naphthalene instead of camphor. The celluloid thus produced, the paper adds, is just as good as, if not better than, that in which camphor forms one of the ingredients.

Farmers' Unions in Germany.—Consul Hughes reports from Coburg, April 12, 1901:

The farmers of the Bavarian and Wurttemberg Allgäu districts have combined for the purpose of buying all their fertilizers, both chemical and natural, at the best wholesale prices and on the most favorable conditions. They use about 1,000 wagonloads (of 200 cwt.) per year. It is also rumored that they intend to buy all their agricultural and other machines the same way. It would be well for American sellers of artificial fertilizers and for makers of American agricultural machinery to look up the persons having charge of this enterprise.

New Commercial School at Cologne.—Consul Hughes, of Coburg, April 18, 1901, says that the commercial school at Cologne, which was opened April 1, is the first of its kind in Germany that has been started as a perfectly independent institution, without the assistance of some older seat of learning. Every kind or sort of knowledge, says the consul, that can in any way be used in commercial, banking, or counting-house life is to be taught in precise

detail. In fact, the object of the founders is to make the school the best in the world, not only theoretically, but from a practical standpoint. A special department is to be created for young Government employees who have not been able to enjoy the higher educational branches, to enable them to perfect themselves in commercial and financial knowledge.

German Wine-Trade Directory.—Consul Schumann sends the following, dated Mainz, April 22, 1901:

It may be of interest to the wine and kindred trades to know that there is published in this city a directory containing the names and addresses of all the wine merchants, manufacturers of sparkling wine, distillers, wine-room keepers, agents, and wine-commission brokers of Germany. The price of the directory is 12.60 marks (\$3), postage to foreign countries included. The directory may be obtained from the publisher, J. Diemer, No. 19 Grosse Bleiche, Mainz, Germany.

British Barley and New Sugar Duty.—Consul Marshal Halstead, of Birmingham, under date of May 2, 1901, notes complaints published in the London Times, to the effect that the new sugar duty will lessen the use of British malting barley. The writer points out that malt made from British barley, when used for brewing purposes, requires the admixture of either a percentage of sugar or of a still larger percentage of malt from foreign barley, and he explains that with the new duty the beers containing a large proportion of English barley will be taxed more highly than those containing a large proportion of foreign barley. The effect of this will be to decrease the per cent of British barley used.

British Market for Horses.—Consul-General Guenther writes from Frankfort, March 29, 1901:

In consequence of the South African war, horses are in great demand in England. Between October, 1899, and the 31st of January, 1901, 35,775 mares and geldings and 3,627 stallions were bought in the United Kingdom for South Africa; other countries furnished 36,314 mares and geldings and 35,516 stallions for the same purpose. The British horses, especially those from Ireland, are said to have been the most desirable, those from the United States and Canada following.

British Invention for Aërial Navigation.—Consul-General Guenther sends the following from Frankfort, dated April 13, 1901:

German papers report that an Englishman, Mr. H. Houbon, has invented a process for making very pure hydrogen from acetylene. He condenses acetylene in a Caillet steel bomb up to 5 atmospheres, and ignites it by means of electricity. Hydrogen and carbon are formed; the latter precipitates in the form of fine soot. The process is without danger and makes it possible to generate hydrogen on a large scale very cheaply. This invention may mean much for balloon technics, as the present methods of making hydrogen are expensive.

Practical Result of Wireless Telegraphy.—Under date of March 27, 1901, Consul-General Guenther, of Frankfort, says that the captain of a channel mail steamer, which is equipped with an apparatus for wireless telegraphy, reports that on his last trip a message was received from the French light-ship, which is anchored about 25 sea miles from Dunkirk, stating that the latter would be unable to light up the next night unless help arrived from shore. The captain at once sent a second wireless message to La Panne, on the Belgian coast, from which point it was forwarded to Dunkirk by the regular telegraph line. From this place, a boat was dispatched to the light-ship and the necessary repairs were made.

Wireless Telegraphy in the Mediterranean.—Consul Grout, of Malta, notes that recent experiments in wireless telegraphy off the coast there have resulted in the successful transmission of a message 134 miles. While experimenting on a ship in the open sea, he adds, the operators were surprised to receive a message in Italian, asking as to the position of the ship. It afterward turned out that the message came from an Italian war vessel at Syracuse.

Telegraph Wires Laid on Snow.—Consul-General Guenther, of Frankfort, April 13, 1901, says that, according to experiments conducted by Mr. H. Janssen on Mont Blanc, it is not necessary to erect poles for stringing telephone and telegraph wires in snow-covered countries. If the snow is several inches thick, it serves as a good insulator; the wires can simply be laid down and be ready for transmission of messages. The consul-general adds that similar experiments with equally favorable results were made on Mount Ætna.

Typewriters in the Netherlands: Correction.—Consul Hill writes from Amsterdam, April 15, 1901:

In my report of January 22, 1901,* the Oliver and the Barlock were noted among the less expensive machines here, which was according to information from one of the largest dealers in typewriters in Amsterdam; both these should be placed among the high-priced machines, such as the Remington, Underwood, etc. I am told by the local representative of the Oliver Typewriter Company that the price at which the machine is sold here is £22 (\$107).

Danish Substitute for Rubber.—Consul Freeman sends the following from Copenhagen, April 25, 1901:

This office is deluged with letters from American manufacturers in regard to a report emanating from Bergen, Norway,† to the effect that a chemist of Copenhagen had discovered a process for manufacturing out of asphalt a material called "solicum," which serves as a substitute for rubber. No process has been patented or discovered in Denmark for manufacturing such a material out of asphalt. A chemist named C. A. R. Steenstrup has recently patented a process for makingolicum from old rubber and oil. Its efficiency as a substitute for pure rubber has yet to be demonstrated.

Alleged Process of Preserving Butter.—Consul Freeman, of Copenhagen, under date of April 22, 1901, says:

I am in receipt of so many inquiries from the United States in regard to the reported discovery of a new and successful process for preserving butter, meat, eggs, etc., that I am led to suggest that notice be given in the CONSULAR REPORTS that the so-called discovery is a failure. The alleged inventor applied for a patent, but his application was rejected. The sealed package of butter which was presented as a test of the process bore a notary's certificate as having been sealed up in 1900, but it was proved that the butter had been preserved only a few weeks, the date—February, 1901—having been surreptitiously changed to read February, 1900.

Artificial Sulphur Water.—Under date of April 16, 1901, Consul-General Guenther reports from Frankfort:

The eminent French chemist Mr. Armand Gautier has reported a discovery to the Paris Academy of Sciences which may prove of

*ADVANCE SHEETS No. 966 (February 19, 1901); CONSULAR REPORTS No. 247 (April, 1901).

† See ADVANCE SHEETS No. 991 (March 22, 1901); CONSULAR REPORTS No. 248 (May, 1901).

great hygienic value. He has found that finely powdered volcanic stones, treated by boiling in water at a temperature of 250° to 300° Celsius, yield a liquid identical in composition with the ordinary sulphur water of mineral springs, except that it is stronger than the latter.

An Antidote to Mosquito Poison.—Consul-General Guenther writes from Frankfort, April 16, 1901:

Prof. Dr. Voges, the director of the national board of health at Buenos Ayres, according to German papers, has found a remedy for mosquito bites. He states that he discovered it by accident during his trip to Paraguay to study the pest. He had been supplied with all sorts of remedies, among them "naphthalene," an article of no value whatever against the pest; but on using it for mosquito bites, he found it of surprising effect. It neutralizes the poison, even when the spot bitten is greatly inflamed. If fresh bites are rubbed with naphthalene, no swelling follows. The professor considers naphthalene almost a specific against mosquito poison.

Combination of Scandinavian Match Factories.—Under date of April 26, 1901, Consul Bergh, of Gothenburg, says:

The Gothenburg Post contains an article which in translation reads as follows:

According to the Copenhagen newspaper Borsen, the negotiations concerning the combination of the Scandinavian match factories are now nearly completed. The combination will include all the Danish match factories and several Swedish and one English match factory, which together will form a large joint-stock company, with a capital stock of about 5,400,000 kronor (\$1,447,200). No new shares will be issued for the time being. The company will have offices in the free port at Copenhagen and in Hamburg and London.

Cotton Culture in Hungary.—Consul Mahin, of Reichenberg, under date of April 22, 1901, reports:

It is intended this year to essay the cultivation of the cotton plant in Hungary. It is said that it will ripen in the southern part of that Kingdom; the efforts to grow cotton in the lower provinces of Asiatic Russia, in the same latitude as Hungary, have been successful. It is probable that bounties will be paid the cotton planters, in keeping with Hungary's liberal treatment of the founders of factories. More or less success is now attending the culture of cotton in Spain, southern Italy, Macedonia, and Malta.

Demand for Palms in Hungary.—Consul Chester writes from Budapest, May 14, 1901, that Mr. D. Schneider, a florist and manufacturer of artificial flowers of that city (VIII József Könyt, 62), desires the names of firms in Florida exporting prepared palms, a stock of which Mr. Schneider keeps for ornamental purposes. The books of reference in the consulate give the names of manufacturers only, and the consul thinks that if a book giving the names of exporters of raw materials were sent him, it might aid in promoting trade.

Tea in the Caucasus.—Consular Agent Harris reports from Eibenstock, April 26, 1901:

The cultivation of cotton in the Caucasus has been attended with such success that the Russian Government has decided to introduce the culture of tea into that province. In 1900, nine trial plantations were laid out in the districts of Osurgei and Kutais. The results have been such that new plantations will be laid out in the districts of Mingrelien and Sentum. Plants and seeds have been collected for this purpose from the best tea provinces of China.

The Kaiser Wilhelm Canal.—Consul Hughes, of Coburg, April 22, 1901, quotes the following figures from the report of the operations of the Kaiser Wilhelm Canal during 1899 and 1900:

Description.	1899.	1900.
Vessels using canal.....number...	26,524	29,571
Tonnage.....tons...	3,451,273	4,282,258
Toll collected.....	\$421,394	\$507,690

Zinc Poison in Colored Hosiery.—Consul Hughes, of Coburg, April 23, 1901, says that the bad effects of wearing pearl-gray silk hosiery, colored by repeated baths in a solution of zinc chloride, has been demonstrated by Dr. Adolph Jolles before the Vienna Medical Society. Dr. Jolles, adds the consul, showed conclusively that as much as 25 per cent of the zinc coloring matter was still on the hosiery when it was packed for market, and that the danger from absorbing this poison through the pores of the skin was very great.

Charters for the Canary Islands.—Consul Berliner, of Teneriffe, April 3, 1901, says that charters of American vessels arriving at that port invariably contain the following clause: "Consular fees to be paid by the consignee of the vessel," when, according to law,

all consular fees are charged to the United States Treasury. Mr. Berliner suggests that this clause should be erased. He also thinks that some statement in regard to towage in and out of port should be inserted in all charters, as this would effect a saving to the vessel of from \$25 to \$50.

German Enterprise in Central America.—The Department has received the following translation from the Berlin South American Outlook, forwarded by Vice-Consul-General Murphy, of Frankfurt, under date of April 6, 1901:

German trade continues to develop rapidly in Central America. Fully \$60,000,000 of German capital is invested in Central American enterprises, and German plantations occupy an area of 740,000 acres. Large German business houses in Nicaragua, Guatemala, and Costa Rica control, in addition to the entire traffic between Germany and Central America, almost the entire foreign trade of the five republics with England and California. The shipping trade along the Central American coasts is to a large extent in German hands.

New Nicaraguan Loan.—Consul Donaldson, of Managua, informs the Department that the Nicaraguan Government has floated the voluntary loan of 1,000,000 pesos (\$451,000*) authorized by executive decree of February 4 last. The purpose of this loan, says the consul, is to raise funds for the construction of the new Central Railway. The bonds, which were taken up by local merchants and business men, are guaranteed by 40 per cent of the customs duties collected at ports on the Atlantic coast and 10 per cent of those at ports on the Pacific coast.

Vice-Consul Scott, of San Juan del Norte, also reports the loan; he notes that 60 per cent thereof is to be in legal currency and 40 per cent in consolidated customs bonds.

Trade Notes from Honduras.—The Department has received a letter from an American residing in Honduras, suggesting that our trade in that Republic would be greatly facilitated by the introduction of the parcels post and the postal-money-order system. He adds that Truxillo, being the point at which goods arrive and leave daily for the interior, would be an excellent center for a purchasing agency and a bank. The projected railway in Honduras will have its terminus at Truxillo, which will make it a desirable shipping point for American miners and ranchers.

* Taking the valuation of the Central American peso by the United States Treasury, April 1, 1901, at 45.1 cents.

Dock at Corinto.—Consul Donaldson reports from Managua, April 12, 1901:

The Government of Nicaragua has signed a contract with Mr. T. Solomon, an American citizen residing in Bluefields, for the construction of a dock at the port of Corinto. The dock is to be 500 feet long by 315 feet wide and to be constructed of iron; it is to cost \$150,000 gold and to be ready for public use within one year. As compensation for the capital invested, Mr. Solomon will be allowed to collect from 10 to 15 cents per cwt. for freight and 10 cents for each passenger embarking at or disembarking from the port.

New River Steamer at Frontera.—Consul Canada reports from Veracruz, May 7, 1901:

On May 5, a new steamer was placed in service in the port of Frontera, to be employed in transporting passengers and freight between points along the extensive river system of the State of Tabasco. It was constructed at Frontera, all foreign material used in her construction being brought from the United States. It is equipped with all modern conveniences, including a good search light, and will make speed of 12 miles per hour.

Tacoma-Liverpool Steamship Line.—The Bureau of Foreign Commerce has received from the Tacoma Chamber of Commerce and Board of Trade the announcement that a new line of steamers has been established to ply between Tacoma and Liverpool, via the Suez Canal, touching at Manila and other Philippine ports, all the Straits ports, and those of India, Arabia, Egypt, the Mediterranean, and the Continent. There are nine ships engaged in this line, with a tonnage varying from 4,000 to 11,000 tons.

Coal Mining in Dutch India.—Under date of May 2, 1901, Consul Hill, of Amsterdam, reports:

During the last six years, the Ombilien coal mines in Sumatra have been worked on Government account, the production increasing from 108,000 tons in 1895 to 196,000 tons in 1900. The production price in 1895 was 3.10 florins (\$1.25); in 1899, 3.16 florins (\$1.27). In coal mining and railway transport, the Government made a net profit of 381,000 florins (\$153,162). The railway has been lately improved, and now affords regular transportation facilities for 360,000 tons per year. According to reports, large quantities of excellent coal have been found on the west coast of Atjeh.

Manila Cigars in Java.—Consul Hill, of Amsterdam, April 4, 1901, says that, in view of the decline in the importation of Manila cigars into Java from 127,600 pounds in 1894 to 12,632 pounds in 1900, the director of finances has been petitioned to abolish the preferential duty on these goods. The present tariff on Manila cigars is 80 cents a thousand, while other cigars pay only 20 cents.

Amsterdam-Hawaii Parcels-Post Rates.—Consul Hill, of Amsterdam, March 28, 1901, reports the following parcels-post rates on packages sent from that city to the Hawaiian Islands:

	Florins.
Parcels up to 1 kilogram (2.2 pounds).....	2.00 = \$0.80
Parcels from 1 to 3 kilograms (2.2 to 6.6 pounds).....	4.12½ = 1.66
Parcels from 3 to 5 kilograms (6.6 to 11 pounds).....	6.25 = 2.51

Chinese Demand for Stearin Candles.—Consul-General Guenther, of Frankfort, April 1, 1901, says that the German consul-general at London, in a report to the Reichsamt, calls attention to the fact that Great Britain, Belgium, and Holland have recently exported large quantities of stearin candles to China, where a good market for this article is said to exist. The price of popular brands, per dozen pounds in a package, f. o. b. London, varies from 4s. 4d. (\$1.05) to 5s. 2d. (\$1.25).

Demand for Steel Rails in New South Wales.—Consul-General Guenther, of Frankfort, May 4, 1901, quotes from German newspapers a dispatch from Sydney to the following effect:

The Government calls for bids for furnishing several hundred thousand tons of steel rails, which shall be manufactured in New South Wales and be delivered within four years. This involves the establishment of large iron works in the colony. A deposit of \$48,660 is required as security that the contract will be carried out. It is also stipulated that the price of the rails shall not exceed the price in Great Britain and America, plus the freight.

Steel Rails for Queensland.—Writing from Frankfort under date of March 25, 1901, Consul-General Guenther says that, according to recent press dispatches from Melbourne, the Queensland government will receive bids for large quantities of 42 and 61 pound steel rails for the new railroad authorized by that province.

Steamship Concession in Liberia.—Consul-General Smith reports from Monrovia, February 28, 1901, that the Liberian Government has granted to the Afro-American Steamship and Mining Company, of Boston, the right to establish a steamship line between Boston and Liberia; to build wharves, quays, railways, and tramways; and to carry on a system of mining operations for a period of fifty years. The Liberian Government receives in consideration thereof \$10,000.

Telephones in Liberia.—Minister Smith reports from Monrovia, February 26, 1901, that Mr. T. J. R. Faulkner, a civil engineer from the United States, has placed that city in telephonic communication with White Plains, a settlement 25 miles up the St. Paul's River. This is the longest line in the country.

Long-Distance Telephone Line in Germany.—Consul Warner, of Leipzig, under date of March 16, 1901, says that the long-distance telephone line connecting the cities of central Germany with Frankfort, Kalk, Mühlheim, Cassel, and Wiesbaden, in the western part of the country, has been opened for use of the general public. The charge for using this line is 1 mark (23.8 cents) for every three minutes to any one of the above-mentioned places.

German Demand for Linoleum.—Consul Hughes reports from Coburg, April 29, 1901, that Messrs. Gebrueder Weisbach, of Strassburg, Alsace, would like to know the names of American manufacturers of linoleum, 4 yards wide. Communications should be addressed direct to them.

Destruction of Phylloxera in Germany.—Under date of April 12, 1901, Consul-General Guenther, of Frankfort, informs the Department that prominent German Government officials and scientists, in discussing the different methods suggested for destroying phylloxera on grapes, decided that the only known means of accomplishing the result effectually was by the use of bisulphuret of carbon and petroleum.

Butter Trade of Finland.—Under date of April 12, 1901, Consul Hughes, of Coburg, says that the Finland butter export trade of last year ran 115,201 kegs behind, the amount for 1900 being 10,141,538 kegs, against 10,256,739 in 1899. This is explained, first, by the partial failure of the animal-food crops and, second, by the increased use of butter in Finland itself.

German Plows in Porto Rico.—Consul Warner, of Leipzig, April 11, 1901, calls attention to the fact that Germany has been exporting plows to Porto Rico during the past year, and suggests that proper steps be taken by United States manufacturers of agricultural and farming implements to bring their superior products to the attention of the people of that island.

Trade at Port Limon.—Minister Merry, of San José, under date of April 7, 1901, calls attention to the increase of commerce at Port Limon, and especially to the large quantity of coffee—48,105⁷ sacks (6,124,668 pounds)—shipped to Europe via New York. English, German, Italian, and Spanish steamers, he says, call at Limon monthly, offering more direct shipment, but generally without saving of time.

Demerara Market Reports.—Consul Moulton sends from Demerara, April 19, 1901, copy of a fortnightly market report published at that city. It contains current prices and a general review of the market. These reports, which will be forwarded regularly by Mr. Moulton, will be placed on file in the Bureau of Foreign Commerce, where they may be consulted by parties interested.

Colombian Export Dues on Cattle.—Minister Hart, of Bogotá, under date of May 2, 1901, cables that the Colombian Government has decreed an export duty on cattle of \$20 gold per head. Cuba, he adds, is a large buyer of Colombian cattle.

Port Charges in Colombia.—Minister Hart cables from Bogotá, April 30, 1901, that from the 15th of May, port charges will be payable in gold.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
R. Guenther, Frankfort.....	May 5, 1901	Population of Prussia.....	Census Bureau.
Do.....	Apr. 30, 1901	Domestic animals in Germany.	Department of Agriculture.
Do.....	May 5, 1901	.....do.....	Do.
Do.....	May 28, 1901	Remedy for phylloxera....	Do.
Do.....	May 8, 1901	Suicides in Prussia.....	Bureau of Education.
Do.....	.....do.....	Fruit trees.....	Department of Agriculture.
Do.....	.....do.....	Improvement of food articles.	Do.
Do.....	.....do.....	German field guns in England.	War Department
Do.....	May 6, 1901	Automobiles for war purposes.	Do.
Do.....	May 22, 1901	Guns for German army....	Do.
Do.....	May 15, 1901	Emigration to North America.	Bureau of Immigration
Do.....	May 22, 1901	German emigration.....	Do.
Do.....	.....do.....	Reduction of wages in Germany.	Department of Labor.
O. J. D. Hughes, Coburg.....	May 1, 1901	Delivery of letters by electricity.	Post-Office Department.
Do.....	May 2, 1901	Meat in England.....	Department of Agriculture
Do.....	May 3, 1901	German raspberry sirup...	Do.
Do.....	.....do.....	Bavarian animal census...	Do.
Do.....	May 1, 1901	Child labor in Germany...	Department of Labor.
Do.....	May 17, 1901	Live stock in Germany....	Department of Agriculture.
Do.....	Mar. 31, 1901	German postal reform.....	Post-Office Department.
F. W. Mahin, Reichenberg...	Apr. 23, 1901	Population of Bohemia....	Census Bureau.
J. D. Hill, Amsterdam.....	Apr. 20, 1901	Census of Gelderland and Friesland.	Do.
J. G. Lay, Barcelona.....	May 6, 1901	Strike at Barcelona.....	Department of Labor.
E. Schneegans, Saigon.....	Mar. 31, 1901	Rice-market report.....	Department of Agriculture.
Do.....	Apr. 11, 1901	.....do.....	Do.
Do.....	Apr. 28, 1901	.....do.....	Do.
F. D. Chester, Budapest.....	May 22, 1901	Mangolieza hog.....	Do.
W. Schumann, Mainz.....	May 13, 1901	German export trade.....	Navy Department.
M. J. Baehr, Magdeburg.....	May 9, 1901	Sugar-beet industry.....	Department of Agriculture.
W. R. Davis, Alexandretta...	May 6, 1901	Crop report.....	Do.
M. H. Twitchell, Kingston, Ontario.	May 31, 1901	.....do.....	Do.
C. B. Hurst, Vienna.....	May 21, 1901	Census of Vienna.....	Census Bureau.
W. H. H. Graham, Winnipeg..	June 3, 1901	Crop report.....	Department of Agriculture.

FOREIGN REPORTS AND PUBLICATIONS.

The Evolution of the Automobile.—The following is summarized from *Le Journal de la Marine et des Locomotions Nouvelles*, Brussels, March 28, 1901:

The automobile is not a recent invention. The first one known was invented by a French engineer, Cugnot, in 1767, and was propelled by steam. Several other machines followed this, but the first nearly practical model appeared at the Paris exposition of 1889, designed by the engineer Serpollet. Steam was again the motive power. In the following year, the petroleum motor of Daimler was used. In 1894, the competitive trial of automobiles from Paris to Rouen was made, and the era of the automobile, whether propelled by steam, petroleum, or electricity, dates from that day. This industry has developed in an extraordinary manner in France. In August, 1900, there were 30,000 of these vehicles in circulation in Paris and the environs. Those having petroleum or gasoline for the motive power are the most widely used. Electric automobiles are at a disadvantage, both on account of the weight of the accumulator and the difficulty of recharging them outside of Paris. There are at present 12 large manufactories of automobiles in France, with a total capital of over \$19,300,000 and employing 15,000 workmen.

The progress of automobiles in Germany has been slower. There are not more than 24 private automobiles in Berlin, although for cabs and delivery wagons they have come into more general use. In order to promote the development of this industry, constructors have decided to organize a permanent exposition in Berlin. Mannheim, with its automobile club, is the only German town where this industry has made any progress. The Benz manufactory has a personnel of 800 workmen and uses only gasoline and benzine motors.

Belgium is to-day one of the principal countries using these vehicles. Their high price makes them still an article of luxury, but they are becoming more popular every day. In April, 1900, there were at least 300 automobiles of different types in Brussels. There are 16 or 17 establishments in Belgium engaged in the manufacture of automobiles, the most important being the national manufactory of firearms of Herstal, near Liege.

This industry is just commencing in Austria; it has only been two years since the vehicles were permitted to circulate in Vienna, where an automobile club was established in 1899. There are already a certain number of manufactories established, one in each of the following places: Vienna, Baden, Nesseldorf, Prague, and Pilsen. The establishment at Nesseldorf produces vehicles using benzine for the motor; it employs 1,000 workmen, making 125 automobiles a year. The manufactory at Baden has a capital of \$290,200, and produces 150 automobiles annually. These are large vehicles, of 5 to 6 horsepower. Budapest has no manufactory, but an increasing number of automobiles is imported. Up to June, 1900, only two automobiles had been imported into Greece, both at Athens. Italy has two manufactories of automobiles in Milan, and one just established in Rome. A certain number of vehicles of foreign make has been introduced, and this industry promises to have a fine future.

Automobiles made their first appearance in Spain in 1898, but none are manufactured there. Portugal, on account of the hilly nature of the streets of its chief towns, does not offer a very good field for this industry. In Russia the bad roads are also an obstacle. Holland, with its level roads, would be an ideal country for automobiles, but the high prices, ranging from \$580 to \$1,350, keep them from coming into general use. There are, however, several manufacturing, and the capital invested in this industry is estimated at \$772,000. Sweden offers a good market for a suitable and cheap machine; in March, 1900, there were only about 15 automobiles in the country. Switzerland has about 200.

The law has hindered the development of automobilism in England, which is far behind France and the United States in this respect. Some automobiles of French make have been introduced.

The German Minister of War has just ordered some automobiles provided with two small pieces, Maxim system, protected by nicked plates; some automobile breaks for the staff, with tables for unfolding maps; and some small vehicles to examine the tests of polygonous cannons.

The automobile trip recently made in the Sahara will have a practical result. The French Government, convinced that the Desert of Sahara is accessible to automobiles, is going to organize a service of control and revictualing by autos for the distant posts of southern Algeria.

Floating Expositions Abroad.—The *Revue du Commerce Extérieur*, Paris, April 20 and May 4, 1901, has articles from which the following is taken:

The idea of a floating exposition is not new. The first exposition of this character, sent out by the Germans some ten years ago, was not a financial success. A second followed a few years later, and the third, which has been quite successful, has just returned to Germany, having done a business of \$5,000,000, in round numbers, during a circuit of seven months. The assessment of charges, with reference to this total, amounts to only $5\frac{1}{2}$ per cent. The intelligent and persevering efforts of German commerce would seem to be worthy of imitation. The following suggestions for the organization of such an exposition are offered: Besides the honorary committee, chosen for the purpose of popularizing the idea in special circles, a working committee should be chosen to obtain the necessary capital—say \$50,000—half of which should be deposited. Heads of manufactories and exhibitors would subscribe for shares, the shareholders being remunerated from the profits of each operation, after deducting expenses. The board of administration, chosen from the exhibitors, should decide upon the itinerary and direct affairs. There would be also a commercial staff; scholars from commercial schools might be apprenticed as clerks and translators. The confidential agent would precede the exposition by about a fortnight; his duty would be to pay the necessary official visits at each port, arrange for the stop, contract for any needed supplies, distribute programmes and catalogues, and arrange with banks for information regarding possible buyers, etc. A steam vessel of 1,000 or 1,200 tons, of a limited draft, would be best, to facilitate communication with all ports. The vessel should have about twenty cabins for passengers, a large, free space between decks for installing the exposition, besides two or three saloons for receptions, for displaying tools and machinery to be run by a small motor. This motor would also serve for electric lighting. Assessments of exhibitors should be fixed at a moderate sum,

giving a right to a determined space, permitting the greatest number of exhibitors possible. A telegraphic code would permit correspondence with the central administration, and enable exhibitors to give their instructions in an economical manner. When orders were to be solicited by the management, a small commission would be charged; the direction could also study and collect articles competing with those carried, select commercial agents, and obtain precise information regarding markets.

New Russian Railways.—The *Nachrichten für Handel und Industrie*, Berlin, May 7 and 10, 1901, says:

The project for a new railway—Moscow-Kasan-Kyshtymsk—has just been examined by the railway commission. It appears absolutely necessary to create a new outlet for the freight of the Siberian Railway, as the present lines are overloaded. The so-called North line, which is to unite Viatka with St. Petersburg, and this Moscow-Kasan-Kyshtymsk line would serve this purpose. The building of the North line is definitely decided and negotiations for its construction are going on with foreign capitalists. There is already a line from Moscow to Kasan, and it is thought the building and management of the new line will be given to this company, with the stipulations that the entire line shall be built at once and not in sections, and that orders for the rails and cars shall be given to Russian factories. The same commission has recently reported on three other new lines. Two have a local importance, being coal-transport lines of 9 and 13 miles in length. The third will unite the towns of Poltava and Ekaterinoslav, and will be 103 miles long. It is intended to obtain the necessary capital by a joint-stock company. The concession is for eighty-one years; after twenty years, the Government shall have the right to buy the line. This road will pass through a fruitful and densely populated country, and will doubtless cause the development of all industries dependent upon agricultural products, such as distilleries, beet-root-sugar manufactories, mills, etc. The district of Poltava is adapted for beet-root production, but has few manufactories, chiefly on account of the lack of railway communication and the difficulty of obtaining coal—a great obstacle, as the entire country has little wood. The sole resource of the inhabitants is agriculture, which can not employ the entire population. The peasants are forced to go south in summer for field work and in winter to the sugar manufactories in Kief and Podolia. The pressing need for this railway is recognized by the Government commission.

Railway in the Senegal.—According to *La Quinzaine Coloniale*, Paris, May 10, 1901, a project for completing the railway from Kayes to the Niger has been adopted. The construction of this railway has been recommended from every point of view as the best aid to commerce and to colonization. It was decided upon in 1879, at the same time as the line from Dakar to St. Louis, and work upon the first section, from Kayes to Bafoulabé, was commenced in the following year. The work has been abandoned and resumed several times, and in 1898 had only reached Bafoulabé, a distance of

81.4 miles. It was then decided to have recourse to a loan. In March last, the general council of the colony agreed to devote a large part of the import duty collected in the Senegal to the completion of this line. The estimate for the territories of the Upper Senegal and Middle Niger has been raised from \$48,250 to \$80,481.

Canal in the River Kwango.—La Gazette Coloniale, Brussels, January 27, 1901, has an account of the work undertaken by the Kongo Free State with a view to overcoming the obstacles to navigation in the River Kwango (Chobe), as follows:

This great tributary of the Kongo is cut in two points by the barrages formed by the falls of François Joseph and of Kingunshi. To insure regular communication, these obstacles must be removed, and the problem is being solved in the following manner: At a point where the banks jut out near the falls, the State is digging a canal 109 yards long and 98 feet wide at the outlet. The work will probably be finished this year. Stern-wheel steamers gauging 10 tons will be used for this work, and their dimensions will permit them to clear, without danger of capsizing, the whirlpools and violent eddies. As soon as the canal is open to traffic, business in eastern Kwango will receive a keen impetus, the importation of cattle from Angola will be increased, and the provisioning of Leopoldville will be facilitated. The trade of the Kwango will abandon the caravan route.

Resources of Manchuria.—La Quinzaine Coloniale, Paris, April 10, 1901, says:

Recent statistics estimate the extent of Manchuria at 2,637 square miles, with a population of 12,000,000, composed of Mongols, Chinese, and Tougouses. The country is divided naturally into two distinct parts, the north very mountainous, with the beautiful valley of Sungari, and the south very sandy and fertile. The principal river is the Laoki. In the valley of the north, wheat, opium, and tobacco are cultivated; elsewhere the fields are sown with hemp, millet, and poppy, or planted with mulberry trees. In the extreme south, cotton and rice are cultivated. The mountain sides are covered with fir trees, and poplars grow along the streams. Silk culture is flourishing in the province of Moukden. In the north, as in the south, are mines of coal, iron, and manganese. There are at least twenty gold beds in the basin of the Sungari. No industries of importance exist, except distilleries and oil manufactories. Commerce, which is almost entirely in the hands of the Chinese, is trammled by the insufficiency of the means of transport and by brigandage.

Wireless Telegraphy in the Hawaiian Islands.—The Board of Trade Journal, London, April 25, 1901, says:

A Foreign Office report states that the Marconi system of wireless telegraphy is now established between four of the Hawaiian Islands, viz, Oahu, Molokai, Laui, and Maui. Experiments have been going on for some time past to find suitable stations on the islands for placing the instruments. Difficulties were met

with in this respect, but they have now been overcome, and the new system of communication was made available to the commercial community and the general public on the 2d of March, and has since been in successful operation. The distances between the interisland telegraph stations are as follows: Oahu and Molokai, 27 miles; Molokai and Lanai, 30 miles; Lanai and Lahaina (Maui), 10 miles; Lanai and Makena (Maui), 30 miles; Makena (Maui) and Mahukona (Hawaii), 43 miles. The latter line is expected to be established very shortly.

Glasgow International Exhibition.—The following details are taken from Trade and Industry, London, April, 1901:

The exhibition will be held from May to November, 1901. For the agricultural section, a farm steading, containing all up-to-date appurtenances, is being erected, with a building for the display of seeds, fertilizers, etc.; while Professor Jamieson, of Aberdeen, will submit the results of twenty-five years' scientific research, and the work of the West of Scotland College of Agriculture will be on view. In the machinery section, a feature will be the driving of exhibits by electric motors, and there will also be a comprehensive collection of labor-saving appliances from America and elsewhere, besides a great display of manufacturing machinery in operation. Marine engineering and shipbuilding will be represented by the chief builders on the Clyde, the Tyne, the Mersey, etc., besides a loan collection of about one hundred select models. Educational exhibits are limited only by space.

Agricultural Instruments in Brazil.—The *Revue Commerciale et Coloniale*, Bordeaux, April 26, 1901, says:

Barbed-wire fencing is much used in southern Brazil. Plows and machines for shelling corn are assured of a ready sale. Shovels, axes, and spades are almost exclusively furnished by the United States. Sickles sell very well, but must have the handles solidly fixed. Poor articles will not sell because they are cheap. To successfully introduce articles of iron or steel into southern Brazil, they must be of good quality and delivered at a lower price than the American articles.

Finances of German Samoa.—The Board of Trade Journal, London, April 25, 1901, says:

The estimates of expenditure for German Samoa for 1901 amount to \$64,724, and the State grant in aid is fixed at \$35,525, an increase of \$26,279 over the estimates of 1900. The increase in the imperial subsidy is due to the fact that (1) the estimated receipts from direct taxes and customs show a diminution of \$19,466 on those estimated for the current year, the administration having for the present abandoned the attempt to levy taxes on the natives; (2) the recurring expenditure shows an excess over that for 1900 of \$3,407, the governor's staff having been increased; the support of the German school devolving upon the protectorate; and the native chief at the head of the autonomous government having been assigned a salary of \$730.

Typewriting Machines in Italy.—The *Nachrichten für Handel und Industrie*, Berlin, March 25, 1901, says:

The use of typewriters has greatly increased in Naples and the vicinity. A cheap machine, specially adapted for writing the Italian language, would meet with success. The vowels should be in duplicate, one without and one with the grave accent. The acute and the circumflex accent are not used in the Italian language. The colon could also be omitted, being seldom used.

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Full directions for binding the Consular Reports are given in No. 131, page 663.

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—**COMMERCIAL RELATIONS**, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—**CONSULAR REPORTS**, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—**ADVANCE SHEETS, CONSULAR REPORTS**, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—**EXPORTS DECLARED FOR THE UNITED STATES**, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of **Declared Exports**, embracing the returns for the fiscal year.

V.—**SPECIAL CONSULAR REPORTS**, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880-81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as **CONSULAR REPORTS** No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled **SPECIAL CONSULAR REPORTS**. There are now the following **SPECIAL CONSULAR REPORTS**:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Flies in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Slave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Slave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1900).—Part I. Gas and Oil Engines in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation, School Gardens; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to \$20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to July 1, 1901, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1896, and in the quarterly valuations thereafter.

XII VALUES OF FOREIGN COINS AND CURRENCIES.

To meet typographical requirements, the quotations for the years 1875-1877, 1879-1882, and 1884-1887 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic.	Gold and silver.	Peso.....	\$1.06,5	Gold—argentine (\$1.82,4) and $\frac{1}{2}$ argentine; silver—peso and divisions.
Austria-Hungary*.	Gold	Crown.....	.20,3	Gold—20 crowns (\$4.05,2) and 20 crowns.
Belgium	Gold and silver.	Franc.....	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil.....	Gold	Milreis.....	.54,6	Gold—5, 10, and 20 milreis; silver— $\frac{1}{2}$, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do .....	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo (\$1.25), doubloon (\$1.65), and condor (\$7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centesimos.
Cuba	Gold and silver.	Peso.....	.92,6	Gold—doubloon (\$1.01,7); silver—peso ($\frac{1}{2}$ cent).
Denmark.....	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador *.....	.....do	Sucres.....	.48,7	Gold—10 sucres (\$1.86,5); silver—sucres and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland.....	.....do	Mark.....	.19,3	Gold—10 and 20 marks (\$1.93 and \$3.85,0).
France	Gold and silver.	Franc.....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling..	4.86,6 $\frac{1}{2}$	Gold—sovereign (pound sterling) and half sovereign.
Greece.....	Gold and silver.	Drachma.....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti .....	.....do	Gourde.....	.96,5	Silver—gourde.
India †.....	Gold	Rupce.....	.32,4	Gold—sovereign (\$1.86,5); silver—rupce and divisions.
Italy.....	Gold and silver.	Lira.....	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §.....	Gold.....	Yen.....	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia.....	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver.	Florin.....	.40,2	Gold—10 florins; silver— $\frac{1}{2}$, 1, and 2 $\frac{1}{2}$ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—\$1 (\$3.02,7).
Peru |.....	.....do	Sol.....	.48,7	Gold—libra (\$4.86,5); silver—sol and divisions.
Portugal.....	.....do	Milreis.....	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶.....	.....do	Ruble.....	.51,5	Gold—imperial (\$7.718) and $\frac{1}{2}$ imperial (\$3.80); silver— $\frac{1}{4}$, $\frac{1}{2}$, and 1 ruble.
Spain.....	Gold and silver.	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver.	Franc.....	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster.....	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay .....	.....do	Peso.....	1.01,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver.	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 250.)

¶ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 234.

XIV VALUES OF FOREIGN COINS AND CURRENCIES.

B.—Countries with fluctuating currencies, 1874-1896.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1892.	1896.
Austria-Hungary*.	Silver.....	Florin.....	\$0.47,6	\$0.45,3	\$0.40,1	\$0.34,5	\$0.33,6	\$0.42
Bolivia.....	do.....	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America.....	do.....	Peso.....	.96,5	.91,8	.....	.69,9	.68	.85
China.....	do.....	Haikwan tael.	1.61	.....	.....	.....	.....	.....
Colombia.....	do.....	Peso.....	.96,5	.96,5	.81,2	.69,9	.68	.83
Ecuador.....	do.....	do.....	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†.....	Gold.....	Pound (100 piasters).	4.97,4	4.90	4.94,3	.....	.....	.....
India.....	Silver.....	Rupee.....	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan.....	Gold.....	Yen.....	.99,7	.99,7	.....	.90,7	.90,7	.99,7
Mexico.....	do.....	Dollar.....	1.04,7	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡.....	Gold and Silver.	Florin.....	.40,5	.38,5	.....	.....	.....	.....
Peru.....	Silver.....	Sol.....	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia.....	do.....	Ruble.....	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli.....	do.....	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1895.	1896.
Austria-Hungary*.	Silver.....	Florin.....	\$0.38,1	\$0.34,1	.....	.....	.....	.....
Bolivia.....	do.....	Boliviano.....	.77,1	.69,1	\$0.61,3	\$0.51,6	\$0.45,5	\$0.49,1
Central America.....	do.....	Peso.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Colombia.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Ecuador.....	do.....	do.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
India.....	do.....	Rupee.....	.36,6	.32,8	.29,2	.24,5	.21,6	.24,3
Japan.....	do.....	Yen.....	.83,1	.74,5	.66,1	.55,6	.49,1	.54,9
Mexico.....	do.....	Dollar.....	.83,7	.75	.66,6	.56	.49,5	.53,3
Peru.....	do.....	Sol.....	.77,1	.69,1	.61,3	.51,6	.45,5	.49,1
Russia.....	do.....	Ruble.....	.61,7	.55,3	.49,1	.41,3	.36,4	.39,3
Tripoli.....	do.....	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.41,1	.44,3

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

C.—Quarterly valuations of fluctuating currencies.

Countries.	Monetary unit.	1898.				1899.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia.....	Silver boliviano.....	\$0.42,4	\$0.40,9	\$0.41,8	\$0.43,6	\$0.43,9	\$0.43,4	\$0.44,3	\$0.43,6
Central America.....	Silver peso.....	.41,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
China.....	Amoy tael.....	.68,5	.66,2	.67,6	.70,6	.71	.70,2	.71,6	.70,5
	Canton tael.....	.68,3	.66	.67,4	.70,4	.70,8	.70	.71,1	.70,3
	Chefoo tael.....	.65,5	.63,3	.64,6	.67,5	.67,9	.67,2	.68,4	.67,4
	Chinking tael.....	.66,9	.64,6	.66	.69	.69,3	.68,6	.69,9	.68,9
	Fuchau tael.....	.63,4	.61,2	.62,5	.65,3	.65,6	.65	.66,2	.65,2
	Haikwan tael.....	.69,7	.67,3	.68,8	.71,8	.72,2	.71,4	.72,8	.71,8
	Hankau tael.....	.64,1	.61,9	.63,2	.66	.66,4	.65,7	.67	.66
	Hongkong tael.....	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.64,3	.63	.65	.67,9	.68,2	.67,5	.68,8	.67,8
	Niuchwang tael.....	.65,9	.62	.63,4	.66,2	.66,5	.65,9	.67,1	.66,1
	Shanghai tael.....	.62,6	.60,4	.61,7	.64,5	.64,8	.64,1	.65,4	.64,4
	Swatow tael.....	.63,3	.61,1	.62,4	.65,2	.65,5	.64,9	.66,1	.65,1
	Takao tael.....	.66	.66,6	.68	.71	.71,4	.70,7	.72	.71
Colombia.....	Silver peso.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
Ecuador.....	do.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6
India.....	Silver rupee.....	.20,1	.19,1	.19,9	.20,7	.20,8	.20,6	.21	.20,7
Mexico.....	Silver dollar.....	.46	.44,4	.45,4	.47,4	.47,7	.47,2	.48,1	.47,4
Persia.....	Silver kran.....	.07,8	.07,5	.07,7	.08	.08,1	.08	.08,2	.08
Peru.....	Silver sol.....	.42,4	.40,9	.41,8	.43,6	.43,9	.43,4	.44,3	.43,6

Countries.	Monetary unit.	1900.				1901.		
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.
Bolivia.....	Silver boliviano.....	\$0.42,7	\$0.43,6	\$0.43,8	\$0.45,1	\$0.46,8	\$0.45,1	\$0.43,6
Central America.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6
China.....	Amoy tael.....	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5
	Canton tael.....	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3
	Chefoo tael.....	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4
	Chinking tael.....	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8
	Fuchau tael.....	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2
	Haikwan tael.....	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7
	Hankau tael.....	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9
	Hongkong tael.....	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael.....	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8
	Niuchwang tael.....	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1
	Shanghai tael.....	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4
	Swatow tael.....	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1
	Takao tael.....	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9
	Tientsin tael.....	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3
Colombia.....	Silver peso.....	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6
India.....	Silver rupee.....	.20,3	.20,7	.20,8	.....	.....	.....	.....
Mexico.....	Silver dollar.....	.46,4	.47,3	.47,6	.49	.50,9	.49	.49
Persia.....	Silver kran.....	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3
Peru.....	Silver sol.....	.42,7	.43,6	.43,8	.48,7	.....	.....	.....

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† The sovereign is the standard coin of India, but the rupee is the money of account.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal.....	4.423 gallons.
Ardeb.....	Egypt.....	7.697 bushels.
Are.....	Metric.....	0.02471 acre.
Arobe	Paraguay.....	25 pounds.
Arratel or libra.....	Portugal.....	1.011 pounds.
Arroba (dry).....	Argentine Republic.....	25.3175 pounds.
Do.....	Brazil.....	32.38 pounds.
Do.....	Cuba.....	25.3664 pounds.
Do.....	Portugal.....	32.38 pounds.
Do.....	Spain.....	25.36 pounds.
Do.....	Venezuela.....	25.4024 pounds.
Arroba (liquid).....	Cuba, Spain, and Venezuela.....	4.263 gallons.
Arshine.....	Russia.....	28 inches.
Arshine (square).....	Do.....	5.44 square feet.
Artel.....	Morocco.....	1.12 pounds.
Bari.....	Argentine Republic and Mexico.....	20.0787 gallons.
Barrel.....	Malta (customs).....	11.4 gallons.
Do.....	Spain (raisins).....	100 pounds.
Berkovets.....	Russia.....	361.12 pounds.
Bongkal.....	India.....	832 grains.
Bouw.....	Sumatra.....	7,096.5 square meters.
Bu.....	Japan.....	0.1 inch.
Butt (wine).....	Spain.....	140 gallons.
Caffiso.....	Malta.....	5.4 gallons.
Candy.....	India (Bombay).....	529 pounds.
Do.....	India (Madras).....	500 pounds.
Cantar.....	Morocco.....	113 pounds.
Do.....	Syria (Damascus).....	575 pounds.
Do.....	Turkey.....	124.7936 pounds.
Cantaro (cantar).....	Malta.....	175 pounds.
Carga.....	Mexico and Salvador.....	300 pounds.
Catty.....	China.....	1.333½ (1½) pounds.
Do *.....	Japan.....	1.31 pounds.
Do.....	Java, Siam, and Malacca.....	1.35 pounds.
Do.....	Sumatra.....	2.12 pounds.
Centaro.....	Central America.....	4.2631 gallons.
Centner.....	Bremen and Brunswick.....	117.5 pounds.
Do.....	Darmstadt.....	110.24 pounds.
Do.....	Denmark and Norway.....	110.11 pounds.
Do.....	Nuremberg.....	112.43 pounds.
Do.....	Prussia.....	113.44 pounds.
Do.....	Sweden.....	93.7 pounds.
Do.....	Vienna.....	123.5 pounds.
Do.....	Zollverein.....	110.24 pounds.
Do.....	Double or metric.....	220.46 pounds.
Chetvert.....	Russia.....	5.7748 bushels.
Chih.....	China.....	14 inches.

* More frequently called "kin." Among merchants in the treaty ports it equals 1.33½ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan.....	Sarawak.....	3,098 pounds.
Do.....	Siam (Koyan).....	2,667 pounds.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8.077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundred weight).....	British.....	112 pounds.
Dessiatine.....	Russia.....	2.6977 acres.
Do.....	Spain.....	1.599 bushels.
Drachme.....	Greece.....	Half ounce.
Egyptian weights and measures.....	(See CONSULAR REPORTS No. 144.)	
Fanega (dry).....	Central America.....	1.5745 bushels.
Do.....	Chile.....	2.575 bushels.
Do.....	Cuba.....	1.579 bushels.
Do.....	Mexico.....	1.54728 bushels.
Do.....	Morocco.....	Strike fanega, 70 lbs.; full fanega, 118 lbs.
Do.....	Uruguay (double).....	7.776 bushels.
Do.....	Uruguay (single).....	3.888 bushels.
Do.....	Venezuela.....	1.599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddán.....	Egypt.....	1.03 acres.
Frait (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2.5066 quarts.
Do.....	Mexico.....	2.5 quarts.
Frasila.....	Zanzibar.....	35 pounds.
Fuder.....	Luxemburg.....	264.17 gallons.
Funt.....	Russia.....	0.9028 pound.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	Do.....	2.471 acres.
Hectoliter:		
Dry.....	Do.....	2.838 bushels.
Liquid.....	Do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1.422 acres.
Ken.....	Japan.....	6 feet.
Kilogram (kilo).....	Metric.....	2.2046 pounds.
Kilometer.....	Do.....	0.621376 mile.
Klafter.....	Russia.....	276 cubic feet.
Koku.....	Japan.....	4.9699 bushels.
Korrec.....	Russia.....	3.5 bushels.
Kwan.....	Japan.....	3.28 pounds.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.32 bushels.
Do.....	Germany.....	1 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	11½ bushels.
Do.....	Spain (salt).....	4,760 pounds.
League (land).....	Paraguay.....	4,633 acres.
La.....	China.....	2,115 feet.
Libra (pound).....	Argentine Republic.....	1.0127 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.01465 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.011 pounds.
Do.....	Spain.....	1.0144 pounds.
Do.....	Uruguay.....	1.0143 pounds.
Do.....	Venezuela.....	1.0261 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter.....	Metric.....	1.0567 quarts.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Guiana.....	1.0791 pounds.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana.....	Costa Rica.....	1½ acres.
Do.....	Nicaragua and Salvador.....	1.727 acres.
Marc.....	Bolivia.....	0.507 pound.
Maund.....	India.....	82½ pounds.
Meter.....	Metric.....	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Milla.....	Nicaragua and Honduras.....	1.1493 miles.
Morgen.....	Prussia.....	0.63 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.8288 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands.....	137.9 pounds.
Pie.....	Argentine Republic.....	0.9478 foot.
Do.....	Spain.....	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile,* Chile, Mexico, and Peru.....	101.41 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric.....	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5½ pounds.
Sagen.....	Russia.....	7 feet.
Salm.....	Malta.....	400 pounds.
Se.....	Japan.....	0.02451 acres.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	11.9305 inches.
Sho.....	do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British.....	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (see cua- dra).
Sun.....	Japan.....	1.193 inches.
Tael.....	Cochin China.....	500.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.04783 bushels.
Tondeland.....	do.....	1.36 acres.

* Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo.....	Japan.....	6 feet square.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland.....	Sweden.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Central America.....	32.87 inches.
Do.....	Chile and Peru.....	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Spain.....	0.914117 yard.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.664 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0358 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acre

CONSULAR REPORTS.

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COMMERCE OF CHINA IN 1900.

The secretary of legation at Peking, Mr. Squiers, transmits under date of April 4, 1901, copy of the official report of trade for the year 1900, issued by the imperial maritime customs. Mr. Squiers notes the progress made in United States commerce during the last ten years, and calls attention to the fact that the gain is really much larger than indicated, inasmuch as a large part of our trade passes via Hongkong and is credited to that port.

The following paragraphs and figures are taken from the report inclosed by Mr. Squiers:

GENERAL.

The great expansion of China's foreign trade, shown by the statistics for 1899, was continued during the first half of 1900; but the disturbances in the north, which became serious in June, not only stopped for a time all trade at Niuchwang and Tientsin, which had shown such improvement during the previous year, but naturally had a depressing effect throughout the ports. The idea that the Boxer movement against the Christian converts could be successfully employed in the deliverance of the country from foreign dictation and interference was accepted by only a limited party in Peking and by certain officials in the northern provinces. Elsewhere, it was fortunately received with a skepticism which proved sufficient to save China from a general war, and trade went on as usual, hampered only by a want of confidence engendered by the uncertainty of the political outlook. In the south, a rebellion which at one time looked serious was promptly suppressed by the authorities, but caused some disturbance to trade in the districts affected. The Yangtze Valley was kept wonderfully tranquil, and one or two abortive attempts at insurrection were immediately quelled. The power of the officials to preserve order has never been more strikingly manifested. That trade was not more ruinously impeded, always excepting the actual area of hostilities, during a year which was so exceptionally trying to merchants and so full of unrest for the populace,

shows its vitality and how quickly it will revive when peace is restored. We may hope that the Chinese Government, under the pressure of circumstances, will now awake to the necessity of developing the resources of the country, and we shall then see China becoming more wealthy under the stimulus of apparent misfortunes. The strength of the Chinese lies in their industry and commercial aptitude, and not in their capacity for war, and the cultivation of friendly relations with foreign powers will serve them better than the vain policy of exclusion and resistance to progress.

The close of the decade offers a convenient opportunity for a general review of the progress of trade. The record of the principal articles imported from 1891 to 1900 shows that, with some exceptions, the trade in cotton piece goods has remained practically stationary, and in some items has even fallen off. The exceptions are American drills, jeans, and sheetings, which show a strong advance, and cotton flannel (principally American) and cotton lastings, which are evidently increasing in favor. English shirtings and T cloths, with English drills, jeans, and sheetings, have made no headway. Japanese cotton goods seem likely to find an enlarged market. English cotton yarn has not progressed, while Indian and Japanese yarns have advanced rapidly. The trades in woolen goods and metals are not growing. Candles, cement, clocks and watches, aniline dyes, window glass, paints, and perfumery have gradually increased in demand; while flour, kerosene oil, matches, and soap have been imported in much larger quantities every year.

As regards heavy cotton goods, the expansion in American manufactures at the expense of British is natural, and must be expected to continue. Indeed, it is remarkable that the Lancashire goods have held their own so well. The rapid growth of the cotton-weaving industry in America has resulted in a production in excess of domestic requirements, and America has become an exporter under favorable conditions. Proximity to China, cheaper freights, and the evident advantage of using indigenous cotton are all factors which will contribute to the future expansion of American trade. In fancy cotton goods, such as lastings, Lancashire can hold its own, as these goods are mostly manufactured from Egyptian cotton. English cotton yarn can not be expected to make progress in the Chinese market against the competition of the Indian, Japanese, and local mills. The demand is for low counts, and while the principal business of the English mills is in high-count yarns, the mills of India, Japan, and China are provided with machinery specially arranged to meet the demand for coarse yarns in the Eastern markets.

Tables of the trade by ports* are given, showing that the imports increased from 134,640,288 haikwan taels in 1890 to 223,791,888 taels in 1900; also, a statement of the value in pounds sterling, the taels having been converted at the average rate of exchange for each year. The sterling value of the import trade, it is shown, has not increased during the decade—the figures for 1890 being £34,922,320 (\$169,949,373) and for 1900 £34,734,365 (\$169,034,956). The figures for 1899, it is true, were £42,282,402 (\$284,557,860); but that was a remarkable year. The report continues:

Reference to old price lists show that silver prices generally have risen in sympathy with the fall in exchange, and the sterling conversions more fairly represent the course of trade than do the silver figures. At the same time, it must be remembered that the value of goods from the Straits is not affected by sterling exchange,

* Including the ports of Kowloon, Lappa, Lungchow, Mengtsz, and Szemao.

while exchange with India, although the closing of the mints in 1893 forced up the value of the rupee, has not followed the exact course of exchange with Europe and America. Japan has now a gold standard, but the currency scheme adopted left her exchange with China almost at par. In some directions, also, there has been a reduction in the sterling cost of production, and the rise in silver prices has not quite kept pace with the fall in exchange. While, therefore, the sterling conversions are offered as interesting and as a better basis for comparison, it is not claimed that they are an entirely accurate index of the changes in the bulk of the trade. There has been an increase, and the Chinese are gradually purchasing more foreign goods and they are demanding a better class of cotton goods; but the table seems to show that, owing to defective means of communication and the cost of carriage, each port supplies only a restricted district. When the populations of such districts are satisfied, trade stands still, except for such expansion as increase in their number and the profits of the trade enable the people to demand. When railways are built, we shall see a great advance in the trade, not only because goods will penetrate farther, but because a large proportion of the capital used in construction will be spent by the Chinese on foreign goods, to be paid for eventually by exports.

As to the principal exports in the last ten years, nearly every article shows a large increase. Bristles, fans, feathers, hemp, hides, mats and matting, oils, rhubarb, sesamum seed, skins, tobacco, and wool are all progressing trades. Silk, with the exception of steam filature silk, does not show a healthy expansion, and is not likely to do so unless the disease among the worms is taken in hand. Black tea has fallen away, but green tea has held its ground, while brick tea has improved. The considerable trade across the Russian frontier and the export of tea, etc., to Tibet do not come within the cognizance of the customs, and these returns thus fail to give complete statistics of China's exports. There is every reason to expect that the trade in sundries will continue to expand, even supposing that nothing is done to encourage the export of tea and silk.

REVENUE.

The total revenue for 1900 was 22,873,986 haikwan taels (\$16,485,282), being 3,787,476 haikwan taels (\$2,729,534) less than in 1899—the highest on record.

TRADE.

One would naturally have expected a disastrous commercial panic, with heavy failures, but the year has been, generally speaking, a fairly good though anxious one. Trade was so brisk during the first six months of 1900 and revived so strongly toward the close that, contrary to all expectations, the value of the foreign trade was well up to the average of late years, although naturally falling short of such an exceptional year as 1899.

At Niuchwang, such astonishing progress was shown previous to the disturbances that a rapid recovery may be looked for. Tientsin may possibly be adversely affected for some little time, but it is just as likely that the profits of the military occupation and the wide distribution of hoarded wealth which has taken place will lead to an early increase of trade there. Personal experience is more persuasive than advice, and the Chinese Government will probably be more disposed to regard with favor the extension of railways since the arduous journey of the Court to Hsi-an, to which place supplies came very slowly and suffered considerably in bulk on the road. Famine, too, has come under their immediate notice, and the people were perishing around them without hope of the relief which railways could have brought. Whatever changes may result from the events of 1900, whatever

readjustments may take place in the share of the trade taken by each country, it may be confidently expected that the foreign commerce of China, as a whole, will continue the expansion which was so marked in 1899.

IMPORTS.

The net value of the import trade was 211,070,422 haikwan taels (\$152,118,453). It was not to be expected that under such unfavorable circumstances the figures of the previous record year would be reached; but it will probably come as a surprise that 1898, which beat all former years, should have been exceeded. Importers of cotton goods have passed through a very anxious crisis, but disaster was averted by another short cotton crop in America.

The goods which arrived in the spring were imported at enhanced prices, and although on the breaking out of the trouble in the north the spring purchases for the autumn market were stopped, there were large stocks which could not be placed and which would have shown a heavy loss had the price of cotton fallen. The banks assisted importers, the short cotton crop saved the situation, and the demand which arose late in the year, especially for the Yangtze ports, effected satisfactory clearances. With the exception of jeans, all heavy goods felt the disturbance in their principal markets in the north, though Dutch and Indian drills and Indian sheetings showed small improvement, English cotton yarn fell away again, and the importation declined to 4,122,133 pounds—less than half what it was ten years ago. Indian yarn only amounted to 131,465,200 pounds, a great decrease on previous years. The principal feature of the trade was the increased demand for printed and dyed goods. Cotton prints rose to 968,828 pieces, printed twills to 68,915 pieces, cotton lastings to 1,216,460 pieces; velvets and velveteens were in greater demand.

The value of the woollen goods was in excess of that of 1898, though nearly all the principal staples fell below the import of 1899. Camlets, long ells, lastings, and especially blankets were imported in excess of 1898, but Spanish stripes and Italian cloth fell off.

Metals were about equal in value to the 1899 total, but with the exception of iron plates, tin and tin plates, quantities did not compare favorably. This trade seems to make no progress. Among sundries, brass buttons, candles, flour, needles, silk piece goods, soap and umbrellas, all exceeded the quantities imported in 1899. American kerosene oil fell from 40,724,989 gallons to 34,447,112 gallons; Russian, from 35,695,116 to 32,708,757 gallons; while Sumatra oil rose from 11,993,202 to 16,424,155 gallons. There was an increase in the import of coal which amounted to 864,158 tons. The value of sundries was rather in excess of that of 1898.

EXPORTS.

The value of the exports was estimated at 158,996,752 haikwan taels (\$114,558,959)—a heavy falling off as compared with the figures for 1899, but only some 40,000 taels below those of 1898. This result may, under the circumstances, be regarded as satisfactory and unexpected. Raw cotton, in consequence of the short crop in America, was exported to the extent of 711,882 piculs (94,917,600 pounds), but this is not likely to be a permanent feature of the export trade. Hemp, hides, horns, nutgalls, oils, straw braid, and tallow were all exported in greater quantities. Sesamum seed made a large advance, while rush hats more than doubled. There was, of course, a heavy falling off in the exports from Niuchwang and Tientsin, and beans and bean cake, with wool, show decreases; but with the exception of these two ports, the trade was not much affected by the political situation.

In the United States, it was believed that the Boxer troubles would interfere with

the tea export, and the closing of the Tientsin route to Russian buyers threw a quantity of common teas on the market at low prices. Speculators therefore bought largely for America, where the markets have been overstocked.

The year was disastrous for the silk trade. Anticipations of the consumption which would result from the Paris exhibition were not fully realized, and overproduction in Europe and America caused a weak demand and low prices. This was the more disappointing because the crop was a good one. The competition of Japan was severely felt. It is estimated that one-third of the production of the Chinese steam filatures remains unsold, and there seems no prospect of an immediate improvement in the market.

TREASURE.

The recorded movements of gold and silver bullion between China and foreign countries show a net import of gold worth 1,202,315 haikwan taels (\$866,508), and a net import of silver to the value of 15,442,212 haikwan taels (\$11,129,202). These figures represent only such movements of bullion as came under the notice of the customs. There was an enormous import of silver in the shape of British, French, and Mexican dollars, brought by the military authorities. In Manchuria, dollars are said to be ousting sycee as currency.

Trade of China with the principal countries.

IMPORTS.

Country.	1899.		1900.	
	<i>Hk. taels.*</i>		<i>Hk. taels.*</i>	
Great Britain.....	40,161,115	\$28,936,083	45,467,409	\$32,768,362
Hongkong.....	118,096,208	85,088,318	93,846,617	67,635,257
India.....	31,911,214	22,992,030	16,813,029	12,117,150
Straits Settlements.....	3,646,195	2,627,083	2,625,258	1,892,023
United States.....	22,288,745	16,059,041	16,724,493	12,053,342
Philippine Islands.....	21,641	15,592	12,815	9,236
Europe, except Russia.....	10,172,398	7,329,213	10,273,405	7,404,043
Russia.....	3,233,239	2,229,549	4,236,507	3,053,251
Manchuria, Russian.....	289,165	208,343	136,956	98,704
Japan and Formosa.....	35,896,745	25,863,605	25,752,694	18,559,967
Macao.....	3,408,516	2,455,835	2,236,289	1,611,693
Turkey in Asia, Persia, Egypt, etc.....	841,850	606,533	1,237,413	891,804

EXPORTS.

Great Britain.....	13,962,547	10,060,015	9,356,428	6,743,178
Hongkong.....	71,845,558	51,764,725	63,991,634	45,097,150
India.....	1,731,498	1,247,544	2,865,345	2,065,054
Singapore and Straits Settlements.....	2,231,792	1,608,006	2,435,355	1,755,160
United States.....	21,685,715	15,624,558	14,751,631	10,631,500
Philippine Islands.....	61,629	44,404	113,831	82,038
Europe, except Russia.....	36,763,506	26,488,106	24,976,619	18,000,640
Russia.....	15,331,186	11,046,120	7,222,733	5,205,424
Manchuria, Russian.....	3,225,806	2,324,093	5,151,382	3,712,601
Japan and Formosa.....	17,251,144	12,429,449	16,938,053	12,207,251
Macao.....	5,824,487	4,196,543	4,710,359	3,394,756
Turkey in Asia, Persia, Egypt, etc.....	2,496,982	1,799,076	2,604,610	1,877,142

* The haikwan tael in 1899 was valued by the United States Mint at 72.05 cents; in 1900, at 72.07 cents.

Chinese trade in articles specified as American.

Article.	1899.		1900.	
	<i>Hk. taels.*</i>		<i>Hk. taels.*</i>	
American sheetings.....	9,610,000	\$6,924,070	6,236,255	\$4,494,460
Jeans.....	272,745	106,513	371,583	267,800
Drills.....	4,216,004	3,037,631	2,351,479	1,694,711
American kerosene oil.....	6,501,789	4,684,539	6,304,384	4,543,570

*The haikwan tael in 1899 was valued by the United States Mint at 72.05 cents; in 1900, at 72.07 cents.

Import of principal foreign goods in 1899 and 1900.

Article.	1899.		1900.	
	Quantity.	Value.	Quantity.	Value.
Opium.....pounds...	7,880,000	\$25,788,689	6,560,133	\$22,363,905
Cotton goods:				
Shirts—				
Gray, plain.....pieces...	5,130,875	8,108,850	4,502,138	8,116,424
White.....do.....	2,753,532	5,838,728	2,476,245	5,704,660
White, figured, etc.....do.....	56,682	71,447	8,727	25,059
Dyed, plain.....do.....	118,189	225,760	109,265	263,799
Dyed, figured, etc.....do.....	85,949	185,529	141,804	303,386
Japanese.....do.....	8,630	13,900	1,256	1,915
T cloths.....do.....	1,199,203	1,675,166	818,103	1,247,366
Indian.....do.....	83,937	82,549	17,113	26,411
Japanese.....do.....	242,652	321,866	105,071	152,043
Drills—				
English.....do.....	78,887	162,623	69,047	156,499
Indian.....do.....	4,460	8,333	7,430	15,524
Dutch.....do.....	40,170	74,201	44,624	83,138
American.....do.....	1,626,107	3,037,631	805,822	1,694,712
Japanese.....do.....	9,577	19,012	518	1,271
Jeans—				
English.....do.....	76,016	108,350	116,118	187,940
Dutch.....do.....	30,690	37,534	23,070	31,923
American.....do.....	126,303	196,513	137,366	267,800
Sheetings—				
English.....do.....	763,762	1,364,302	605,199	1,157,161
Indian.....do.....	40,532	74,306	43,223	76,521
Dutch.....do.....	45	105	1,600	3,220
American.....do.....	3,975,903	6,924,070	2,312,494	4,494,460
Japanese.....do.....	31,820	60,817	26,774	47,925
Chintzes, etc.....do.....	520,541	711,523	668,808	1,063,784
Twills, printed.....do.....	24,097	41,770	68,915	145,666
Turkey-red cottons.....do.....	322,076	817,231	289,422	763,556
Lastings.....do.....	940,672	2,386,797	1,216,460	3,636,601
Damasks.....do.....	17,654	59,827	13,250	44,716
Velvets.....do.....	30,853	137,665	50,080	238,389
Velveteens.....do.....	2,424	12,588	1,774	28,546
Jaconets, cambrics, lawns.....do.....	247,171	171,952	338,236	236,176
Handkerchiefs.....dozens...	678,396	211,047	524,253	195,916
Japanese.....do.....	21,739	7,168	27,645	11,364
Towels.....do.....	550,038	134,386	422,500	110,907
Japanese.....do.....	209,062	69,746	214,088	70,739
Cotton flannel.....pieces...	397,469	799,931	272,626	613,743
Japanese.....do.....	176,676	194,433	155,299	177,119
Japanese cotton cloth.....do.....	181,016	97,207	135,929	81,670
Japanese cotton crape.....do.....	73,069	47,758	76,332	32,141
Unclassified.....value.		497,187		796,823

Import of principal foreign goods in 1899 and 1900—Continued.

Article.	1899.		1900.	
	Quantity.	Value.	Quantity.	Value.
Cotton goods—Continued.				
Yarn				
English	pounds.. 7,827,066	\$361,866	4,122,133	\$516,849
Indian	do. 254,190,466	26,205,428	131,465,200	13,847,000
Japanese	do. 103,960,000	12,177,203	62,870,800	7,239,082
Thread	value.. 240,192			152,207
Woolen goods	do. 3,008,550			2,466,700
Cement	do. 274,855			108,043
China ware, fine and coarse	do. 132,581			76,316
Clocks and watches	do. 366,247			213,852
Clothing, hats, etc.	do. 447,492			480,891
Cotton, raw	pounds.. 37,115,466	2,504,209	17,966,666	1,321,019
Lamps and lamp ware	value.. 215,432			211,661
Machinery	do. 1,099,879			1,045,081
Silk piece goods	pounds.. 99,066	332,854	155,866	602,891
Oil, kerosene:				
American	gallons.. 40,724,989	4,684,539	34,447,112	4,543,579
Russian	do. 35,695,116	3,524,239	32,708,757	3,710,183
Sumatra	do. 11,993,202	858,666	16,424,155	1,804,035
Timber of all kinds	value.. 942,881			745,612
Iron:				
Nail-rod	pounds.. 28,243,066	499,032	16,449,766	298,691
Bar	do. 18,741,200	329,766	15,738,933	296,404
Hoop	do. 2,666,266	50,341	2,157,866	48,755
Sheets and plates	do. 14,599,333	366,081	18,063,066	539,105
Wire	do. 6,456,133	186,531	4,823,866	168,339
Tin, in slabs	do. 4,376,533	1,054,856	6,223,200	1,374,128
Tin plates	do. 2,467,333	75,271	4,472,533	809,455
Lead, in pigs	do. 20,551,866	193,891	11,597,333	370,527
Copper (bar, rod, sheets)	do. 551,866	80,617	772,800	121,282
Brass wire	do. 310,666	46,971	279,200	38,057
Steel	do. 11,100,800	319,670	8,174,933	263,371
Mild, or iron ingots	do. 10,138,133	322,339	14,324,266	271,417

*Chinese population in treaty ports.**

Port.	Number.	Port.	Number.
Szemaio	15,000	Ningpo	255,000
Mengtsz	12,000	Hangchow	700,000
Niuchwang	45,000	Wenchow	80,000
Tientsin	700,000	Santuo	8,000
Chefoo	40,000	Fuchau	650,000
Chungking	300,000	Amoy	96,000
Ichang	35,000	Swatow	38,000
Shasi	75,000	Wuchow	52,000
Yochow	20,000	Samshui	5,000
Hankau	850,000	Canton	800,000
Kinkiang	62,000	Kiungchow	35,000
Wuhu	92,230	Pakhol	20,000
Nankin	300,000	Lungchow	20,000
Chinkiang	140,000	Total	6,563,230
Shanghai	620,000		
Soochow	500,000		

* Estimated.

Foreign firms and residents in China.

Nationality.	Firms.	Resi- dents.
	Number.	Number.
British	424	5,471
American	81	1,908
German	120	1,343
French.....	82	1,054
Dutch	9	108
Danish.....	3	156
Spanish	8	221
Swedish and Norwegian.....	4	204
Russian	21	1,941
Austrian	7	91
Belgian	10	100
Italian	9	133
Japanese.....	212	2,900
Portuguese	16	1,275
Korean		42
Nontreaty powers.....		34

UNITED STATES TRADE WITH CHINA IN 1900.

Consul-General Goodnow, of Shanghai, in transmitting, under date of May 3, 1901, the report on Chinese trade issued by the imperial maritime customs,* says:

Aside from cotton goods, I am of the opinion that more merchandise was imported into China from the United States in 1900 than in 1899, in spite of the general decrease of trade. It is impossible to give exact figures on this subject, as the publications of the imperial maritime customs, so far as regards trade of the United States with China, are misleading. The customs credit the trade to the country from which and to which the carrying ship clears, without taking any note of the country in which the goods originated or for which they are destined. All goods shipped by Canadian Pacific steamers are credited to British America; goods shipped via Hongkong are credited to Hongkong; goods shipped via London are credited to Great Britain; the large shipments from the Pacific coast via Japanese lines are credited to Japan. The amount of American trade, particularly, is minimized by this method.

IMPORTS.

The customs value the imports from the United States in 1900 at 16,724,493 taels (\$12,543,369.75).† This total is at least \$6,000,000 too little. In the table of imports which follows, the amounts of

* See ADVANCE SHEETS No. 1049 (May 29, 1901).

† The consul general in his reductions throughout this report has estimated the *halkwan* tael at 75 cents. The United States Treasury valuation for 1900 was 72.07 cents.

cotton goods and kerosene are as given by the customs returns under the name of "American." The amounts of flour and timber also are as given in the customs returns, as all of those articles are known to be from America. The amounts of the other articles enumerated are approximate, and are estimated by me after consultation with the importers of the various items.

Imports from the United States in 1900.

Article.	Value.	
	Taels.	
Drills	2,351,479	\$1,763,609
Jeans	371,583	278,688
Sheetings	6,236,255	4,600,191
Kerosene	6,304,384	4,728,288
Flour	3,329,868	2,497,401
Timber	1,034,567	775,925
Cigars and cigarettes	900,000	675,000
Wearing apparel *	100,000	75,000
Raw cotton *	360,000	270,000
Machinery *	450,000	337,500
Household stores *	500,000	375,000
Beer, wine, etc. *	210,000	157,500
Iron *	250,000	187,500
Lead *	100,000	75,000
Leather *	150,000	112,500
Clocks and watches *	75,000	56,250
Sundries *	2,000,000	1,500,000
Total	24,723,136	18,542,352

* Approximate.

I am confirmed in my belief that the above figures are correct, from the fact that they agree with former statements of the statistical authorities of the customs, that their tables credited America with only about two-thirds of her import trade. My figures are also confirmed by the United States statistics of exports. By these corrected figures, the United States is second only to Great Britain in amount of goods sold to the Chinese.

EXPORTS.

The customs value the exports from China to the United States in 1900 at 14,751,631 taels (\$11,063,723.25). These figures are farther from the truth than are those in regard to our imports. The table following shows the total amount of invoices of goods shipped to the United States, as filed in this consulate (Shanghai) during the year 1900, and the total of the invoices filed in the other United States consulates in China for the first nine months of the year. I have not at hand the figures from the other consulates for the last quarter of 1900.

Exports to the United States in 1900.

From—	Value.	From—	Value.
Shanghai	*\$12,351,133.66	Tientsin (9 months).....	*\$63,413.84
Canton (9 months).....	3,406,044.91	Chefoo (9 months).....	61,311.15
Amoy (9 months).....	1,660,326.12	Total.....	19,588,318.24
Fuchau (9 months).....	872,618.26		
Hankau (9 months).....	564,470.30		

* United States gold.

The exports to the United States from the six consulates named above during the last quarter of the year may be safely estimated at \$1,000,000.

According to the above figures, the United States buys more goods from China than does any other nation, and her total trade with China, imports and exports, equals that of Great Britain (not including colonies) and is far ahead of that of any other country.

It was a matter of common knowledge a year ago that the trade of the United States was increasing faster than that of any other country; but I am satisfied that at the present time German trade is increasing faster proportionately (not absolutely) than is ours. The reasons for this are patent to the ordinary observer. Germany is sending out her own citizens to handle her goods; the Germans here work intensely and have long business hours, devoting little or no time to relaxation and amusement that can be utilized in a business way. They help and trade with one another. Germany furnishes anything and everything, so far as she can manufacture or buy it, that the trade demands, and supplies goods in the way required.

TRANSPORTATION.

The difficulty of obtaining room for freight from the United States to China did not decrease during the year. No new lines were established, and the existing ones did not increase their facilities. It is gratifying to know that new and larger steamers are being added to the San Francisco lines; that a new line is being established from Portland, and also a line from Seattle. These new vessels will come into service during the fall and winter of 1901.

In 1900, 13,707 vessels entered at and cleared from Chinese ports in the foreign trade. Of this number, 144 were under the American flag. Our trade with China represented 14 per cent of her total foreign commerce; we furnished only 1 per cent of the shipping.

In connection with this matter, I would call attention to the fact that all steamer lines engaged in this trade, except the steamers

owned by Americans, are subsidized in some form by their respective governments. In some cases, the subsidy is direct; in others, it takes the form of a contract for carrying mails at rates which are far beyond prices paid for any other freight. The Nord Deutscher Lloyd (German), the Messageries Maritimes (French), the Pacific and Oriental and Canadian Pacific (British), the various Japanese lines, the Russian lines, all are subsidized directly or by liberal mail contracts. Even the Japanese line (Toyo Kisen Kaisha), running from San Francisco in direct competition with the American line from that port, is subsidized by the Japanese Government. Recently, the Nippon Yusen Kaisha, sailing from Seattle in competition with our lines, has begun to receive a subsidy from the Japanese Government. In sharp contrast with this policy of other governments, we pay no subsidies to American lines bringing our goods to this coast, and pay only first-class freight rates on the actual weight of our mails carried between the United States and China.

COTTON GOODS.

The import of American cotton goods was markedly less in 1900 than in 1899, as shown below:

Article.	1899.	1900.
	<i>Pieces.</i>	<i>Pieces.</i>
Drills	1,626,107	805,892
Jeans	126,303	137,366
Sheetings	3,975,903	2,312,494
Total	5,728,313	3,255,752
Decrease in 1900		2,472,561

The total importation of drills, jeans, and sheetings from all countries in 1899 and 1900 was as follows:

Article.	1899.	1900.
	<i>Pieces.</i>	<i>Pieces.</i>
Drills	1,759,201	927,511
Jeans	233,009	276,554
Sheetings	4,812,062	2,989,650
Total	6,804,272	4,193,715
Decrease in 1900		2,610,557

It will be seen that almost the entire decrease in this line of goods was American. This is accounted for by the fact that the disturbed region was largely supplied with cotton goods from America. The recovery of this trade must be slow, as the dealers are scattered and the northern provinces impoverished.

FLOUR.

Flour, however, was imported in slightly larger quantities, as follows:

1900	\$2,497,401.00
1899	2,328,332.81
Increase.....	169,068.19

That there was no decrease must be accounted for by the presence of the foreign armies and the larger number of foreign men-of-war in China during part of the year.

CIGARS AND CIGARETTES.

Cigars and cigarettes were imported in increased quantities, as follows:

1900	\$758,739.75
1899	635,321.19
Increase.....	123,418.56

Not only does the presence of the foreign forces cause a new demand for manufactured tobacco, but the American producers and manufacturers are also pushing the sale of their goods here through American agents, who are devoting their whole time and energy to this business, and are advertising their wares among the Chinese in the Chinese language in ways they have found, by careful study, are best calculated to attract the favorable attention of the masses of the people. The result of these proper business methods is that the imports of American manufactured tobacco are to-day double what they were two years ago.

TIMBER.

The total cessation of building operations in the north during the disturbed months caused a marked decrease in the amount of timber imported, all of which comes from the United States. Imports were:

1899.....	\$955,313.04
1900.....	755,925.25
Decrease	179,387.79

When peace is settled, so that full crops can again be harvested in the north and prosperity can return to the people, the timber trade will be greatly benefited by the demand necessary to replace buildings destroyed.

ILLUMINATING OILS.

The importation of kerosene has decreased, as shown below:

Description.	1899.	1900.
	<i>Gallons.</i>	<i>Gallons.</i>
American	40,724,980	34,447,112
Russian	35,605,116	32,708,757
Dutch	11,993,202	16,424,155
Total.....	88,413,307	83,580,024
Decrease.....		4,833,283

I am informed that the importation of oil in bulk, which is sold in regions tributary to the treaty ports, increased during 1900; and that the decrease was entirely in oil shipped in cases, which is used in the interior and in the regions tributary to the northern ports. The quantities sold during the two years were practically the same; and the variation in the imports only measures the variation in the amount of oil in stock here.

BEER, WINES, AND SPIRITS.

The importation of American beer materially increased during the year. More American whisky is imported than formerly, but even yet it represents only a small fraction of the total imports. The exact figures of this trade are not obtainable here.

METALS.

The importation of metals was practically the same in 1900 as in 1899 (\$7,000,000). It is well to note that, while our share of this trade is still small, 1900 showed a marked increase in the amount of wire, wire nails, and pig lead imported from the United States. Several large manufactories have also been equipped with American machinery; notably a 300-barrel flour mill in Shanghai, which has been so successful that work to convert it into a 1,200-barrel mill has been begun.

HOUSEHOLD STORES.

The importation of household stores in 1900 was almost double that of 1899; and American provisions—beef and hog products, fruit and nuts, butter, cheese, etc.—more than held their own in the increase.

FOREIGN TRADE OF CHINA.

The report on the foreign trade of China for the year 1900, which has just been issued by the imperial maritime customs, shows that the great expansion of Chinese foreign trade for 1899 was continued during the first half of 1900; but the disturbances in the north, which became serious in June, not only stopped for a time all trade at Niuchwang and Tientsin, which had shown such improvement during the previous year, but naturally had a depressing effect throughout the ports.

That the Yangtze was almost quiet in the face of such alarming reports from the north seems remarkable. Notwithstanding the drawbacks of the year, owing to disturbed conditions, etc., the revenue was the largest for the past ten years, excepting 1899, the imports exceeding every year, even the unprecedented year of 1899, and the exports being only 40,000 taels (\$28,828) under that year.

It is gratifying to see in the tables giving quantities of principal articles imported that American drills, jeans, and sheetings show a strong advance at the expense of their British rivals.

The importance of our trade in the north, where we have the larger share, is shown by the fact that out of a total of 218,000,000 taels (\$151,292,000) of foreign imports in 1898, Chefoo, Tientsin, and Niuchwang had 58,000,000 taels (\$40,252,000), or nearly 30 per cent.

The last ten years also show a large increase in China's export trade, from 101,000,000 taels (\$72,790,700) to 159,000,000 taels (\$114,591,300).

REVENUE.

The following is the total annual revenue for each port for 1899 and 1900:

Port.	1899.		1900.	
	<i>Taels.*</i>		<i>Taels.*</i>	
Niuchwang.....	928,739.5	\$69,157	498,944.4	\$390,085
Tientsin	1,269,803.7	914,894	516,706.7	372,301
Chefoo.....	681,692.9	491,162	556,862.2	401,331
Kyao-chau	32,637.1	22,515	59,489.1	42,869
Chungking	464,205.4	334,460	376,899.8	271,632
Ichang	579,644	417,633	600,376.9	648,002
Shasi	5,284.7	3,808	6,620.9	4,772
Yuchow			790.3	570
Hankau.....	2,398,929.2	1,728,228	2,115,759.7	1,524,828
Kinkiang	987,636	711,592	880,181.8	634,347
Wuhu.....	953,726.1	687,160	894,126.2	644,397
Nankin	56,653.1	40,819	127,449.6	106,267
Chinkiang	926,335.4	667,425	891,042.9	642,175
Shanghai	8,120,844.9	5,851,669	7,147,887	5,151,481

* The haikwan tael in 1899 was valued by the United States Mint at 72.05 cents; in 1900, 72.07 cents.

Revenue—Continued.

Port.	1899.		1900.	
	<i>Tael.</i> *		<i>Tael.</i> *	
Soochow.....	57,358.6	\$11,327	39,654.9	\$28,579
Ningpo.....	800,870.7	577,027	686,184.1	494,513
Hangchow.....	595,059.8	430,389	534,665.7	385,334
Wenchow.....	64,574.3	46,526	41,078.5	29,605
Santiao.....	4,209.2	3,033	77,685.5	55,988
Fuchau.....	1,463,611.3	1,054,532	1,188,340.2	856,437
Amoy.....	765,769.9	551,737	665,829.7	479,863
Swatow.....	1,658,999.5	1,195,399	1,504,600.7	1,084,372
Wuchow.....	294,590.9	212,253	303,369.8	218,639
Sanshui.....	113,617	81,861	99,009.9	71,356
(a) Kungmong.....	27,810.4	20,037	30,950.3	22,306
(b) Kumchuk.....	6,276.9	4,523	9,433	6,798
Canton.....	2,016,269.5	1,452,722	1,808,930.7	1,303,696
Kowloon.....	383,090.7	270,017	350,024.8	252,263
Lappa.....	436,881	314,773	607,069.2	480,757
Kiungchow.....	201,142.4	144,923	157,784.9	113,716
Pakhoi.....	173,393.5	124,939	135,837.8	97,898
Lungchow.....	3,024.8	2,179	5,319.6	3,834
Mengtze.....	179,898.2	129,617	179,138.7	129,107
Szema.....	7,678.7	5,749	6,767	4,877
Total.....	26,661,460.4	19,209,582	22,873,985.5	16,485,281

* The haikwan tael in 1899 was valued by the United States Mint at 72.05 cents; in 1900, 72.07 cents.

PEKIN, *March 27, 1901.*

H. G. SQUIERS,
Secretary of Legation.

TRADE OF KOREA IN 1900.

No reports of the trade of Korea have been published for the past seven years. I am able, however, to append two tables covering the chief facts relating to imports and exports, with an estimate of the value of American trade.

Foreign goods reach Korea chiefly through Japan and Shanghai, and it is difficult to ascertain just what proportion belongs to each nationality. The chief item of American imports is kerosene, which amounted in 1900 to \$896,815. Next comes mining supplies, of which at least \$150,000 were imported from the United States last year. American imports into Korea have more than doubled in the past year, and the trade is growing. Although the total commerce of Korea seems small when compared with the traffic of one American port, there are possibilities of development. Kerosene has only made a start and its use is bound to increase rapidly, while the American product has obtained such a firm foothold because of its excellence and the wisdom of those who handle it, that it will suffer little from competitors.

GOLD MINES.

Korea seems likely to become an important field for gold mining. The American mines at Woonsan are working successfully. They now run a 40-stamp mill and two mills of 20 stamps each, while other large plants are contemplated. The district, some 20 by 30 miles in extent, has hardly been prospected as yet, though the company employs nearly 70 foreigners and about 3,000 natives. The managers have not begun operations on their valuable placer properties.

The English mines at Eunsan are said to be in a prosperous condition prospectively, though the work of development is only well begun.

The German mines at Kimsung are still in the period of exploitation. It is understood that up to the present the actual results have not been as good as were expected, but that may be due to a lack of development work.

During the year 1900, concessions were granted to the Japanese for the Chicsan mines, and to the French for mines yet to be located. No work has yet been done in connection with mines covered by a concession granted to a Russian subject.

RAILWAYS.

The Seoul-Chemulpo Railway, built by an American for the American concessionnaire and sold to a Japanese syndicate, is now in full operation, connecting Seoul with its port by a line 26 miles in length. The Japanese are meeting with good success in selling the shares of the Seoul-Fusan Railway; in regard to this, I append a cutting from the Japan-American Commercial Journal. Work is to be begun on this project this spring.

The Korean Government has made a contract with a French company to build a railroad to connect Seoul with Weiju, the northwest border town, a distance of about 500 miles. This will be very difficult to build, as the country is mountainous and many rivers and wide areas of quicksand must be crossed. It is understood that the Korean Government will furnish 100,000 yen (\$50,000) per annum to build this road, the materials for which, as well as the engineers, must come from France.

Americans have built, and are now successfully operating, an electric railway in and about Seoul. At present, this road is but about 10 miles in length, but an extension is being built which will carry it some 18 miles into the country. The natives are patronizing this road well, and it has now become a necessity and meets with little or no opposition.

ELECTRIC-LIGHTING PLANT AND WATERWORKS.

In connection with the electric railway, the same company is erecting an extensive lighting plant for the city of Seoul.

It is also under contract to construct a complete system of waterworks, and engineers have been busy during the past winter arranging the preliminaries.

CURRENCY.

The money in use in Korea consists of copper cash and nickel 5-cent pieces, which latter are now being extensively coined by the Government and in private mints, to take the place of the bulky copper cash. It is the intention to coin silver pieces during the year 1901; but it is feared that this will be a mistake, since the coins will speedily leave the country, owing to the difference between imports and exports and the lack of anything with which to purchase foreign goods. Korea is greatly in need of money, yet no encouragement is given to the people to develop their excellent natural resources. Japanese currency is also largely used. During 1899, Japanese money circulated in Korea to the following extent: Paper, 3,000,000 yen; gold, 10,000 yen; silver, 1,000,000 yen—making a total of 4,010,000 yen, or \$2,005,000.

BANKING FACILITIES.

The First Bank of Japan maintains extensive branches at Seoul and Chemulpo, where substantial buildings of brick and stone have been erected. The managers also have branches at some of the other ports, as have other Japanese banks. The Hongkong and Shanghai Banking Corporation has an agency at Chemulpo, and is doing an increasing business. The American firm Collbran & Bostwick, which operates the electric plants, has a charter for a bank, and is now erecting a fine brick structure in Seoul for use as a bank and office building.

TRANSPORTATION FACILITIES.

Korea is very well served by two lines of Japanese steamers running from Kobé via the ports of this country. A Korean steamship company has been in operation for the past year with two or three steamers, and claims to be quite satisfied with the results of its work. Traffic on the river between Seoul and Chemulpo has greatly decreased since the opening of the railroad, though the latter makes

discriminating rates in favor of Japanese shippers, as will be seen from the following list of a few articles:

Article.	Rates per 100 pounds.	
	For Japanese.	For others.
	<i>Cents.</i>	<i>Cents.</i>
Candles.....	20	28
Shirtings.....	18	21
Umbrellas.....	20	35
Claret.....	22	40
Beer.....	18	30

POST-OFFICE AND TELEGRAPHS.

The Korean foreign post has been in successful operation since January, 1900; the domestic service had been working before that date. No returns have yet been published.

The Korean telegraph bureau reports a business for 1900 amounting to 72,443.26 yen (\$36,222), being an increase of 21,756.37 yen (\$10,878) over the previous year.

AMERICANS IN KOREA.

Americans are prominent in the trade and development of Korea. There are 269 Americans resident in Korea with their families, as follows: Missionaries, 162; miners (including some Americans employed at the German and English mines), 75; electric company employees, 15; officials of the Government of Korea and the United States, 10; merchants, 6; and one prisoner.

HORACE N. ALLEN,
Consul-General.

SEOUL, KOREA, *April 1, 1901.*

KOREAN TRADE STATISTICS.

Description.	Value.	
	<i>Yen.</i>	
Total trade of Korea for 1900, including native imports and reexports.....	27,490,388	\$13,690,213
Net revenue for the year.....	1,097,217	546,411

Imports.

Description.	Value.	
	Yen.	
Net imports.....	13,355,273	\$6,650,406
<i>Classification of imports.</i>		
Cotton goods.....	5,407,970	2,737,984
Woolen goods.....	54,240	27,006
Miscellaneous piece goods.....	7,933	3,951
Metals.....	421,581	250,747
Sundries:		
Foreign.....	4,958,746	2,460,436
Native.....	2,414,813	1,202,577
<i>List of sundries, each amounting to 10,000 yen (\$4,080) or over.</i>		
Arms, ammunition, etc.....	138,911	67,178
Bags, etc., for packing.....	284,002	141,881
Candles.....	50,367	25,083
Charcoal.....	18,752	9,338
Shoes (Japanese sandals).....	106,844	53,198
Clothing.....	108,360	53,063
Coal and coke.....	11,000	5,478
Firewood.....	34,416	17,130
Flour.....	11,325	5,640
Grass cloth.....	58,546	29,156
Mirrors.....	10,783	5,252
Machinery.....	76,085	37,690
Wine, beer, and spirits.....	58,900	29,332
Matches.....	481,354	239,714
Medicines.....	72,364	36,037
Mining supplies.....	317,686	158,228
Needles.....	42,818	21,323
Kerosene:		
American.....	1,797,630	895,220
Japanese.....	222,730	110,980
Other kinds.....	18,748	9,337
Paper.....	62,286	31,018
Porcelain.....	50,224	25,012
Provisions.....	132,047	66,759
Railway plant.....	182,806	91,037
Saké.....	16,776	8,354
Salt.....	150,536	74,977
Silk piece goods.....	157,830	78,999
Skins.....	32,240	16,056
Sugar.....	10,988	5,472
Timber.....	47,661	23,733
Tobacco, cigars, etc.....	148,106	73,737
Umbrellas.....	58,775	29,270
Wooden ware.....	16,475	8,205

Proportion of American imports.

Description.	Value.	
	Yen.	
Kerosene.....	1,797,630	\$895,220
Provisions (estimate).....	66,000	32,868
Railway plant (estimate).....	100,000	49,800
Timber (estimate).....	40,000	19,920
Flour (estimate).....	10,000	4,980
Machinery (estimate).....	60,000	29,880
Mining supplies (estimate).....	300,000	149,400
Total.....		1,182,068

Exports.

Description.	Value.	
	Yen.	
Total Korean exports for 1900.....	9,439,867	\$4,701,054
<i>List of exports amounting to 10,000 yen (\$4,080) or over.</i>		
Barley.....	13,478	6,712
Beans.....	346,358	471,286
Bones.....	11,576	5,765
Fish.....	60,533	30,145
Ginseng.....	60,310	30,034
Hides.....	22,890	11,399
Rice.....	1,145,805	570,612
Seaweed.....	21,733	10,823
Skins.....	14,775	7,358
Wheat.....	55,876	27,827
Declared export of gold.....	3,633,050	1,809,239

Annual export of treasure (gold).

Year.	Value.	
	Yen.	
1894.....	950,703	\$473,450
1895.....	1,360,279	677,419
1896.....	1,443,530	718,878
1897.....	2,034,079	1,011,971
1898.....	2,391,452	1,190,043
1899.....	3,184,653	1,585,957
1900.....	4,101,260	2,043,427

THE RAILWAYS IN KOREA.

[From the Japan-American Commercial Journal.]

The projectors of the Seoul-Fusan Railway have issued a circular which contains a very plain statement of their programme. They put the capital of the undertaking at 25,000,000 yen (\$12,450,000), to be raised in installments of 5,000,000 yen (\$2,490,000) each. As soon as one-tenth of the first installment is paid—in other words, when 500,000 yen (\$249,000) have been gathered—the company is to be entitled to commence work. It is further to have power to issue debentures to an amount not exceeding 10,000,000 yen (\$4,980,000). The Government is asked to do two things: First, to make itself responsible for the payment of the debentures; secondly, to guarantee 6 per cent interest on the company's paid-up capital; not an actual disbursement of 6 per cent, but such a sum as shall bring the company's net profit to 6 per cent. Of course, until the line begins to be operated, the whole of the 6 per cent would have to be disbursed by the Government.

JAPANESE TRADE IN THE EAST.

English reports indicate that the influence of Japan is continually increasing in the East. The Japanese people, as well as the Government, are making energetic efforts to become economically independent of foreign aid by developing the resources of their country, creating transportation lines, establishing manufactories, etc. Japan

sends almost twice the amount of goods to the United States that she imports therefrom. France receives three times the amount of merchandise from Japan that her exports to that country aggregate. From Colombo to Vladivostock, Japanese coal and Japanese matches are the most popular; and Japanese beer is the common drink. The number of foreigners doing business in Japan is steadily diminishing, and their position there is becoming more and more difficult; on the other hand, Japanese merchants are spreading abroad in an extraordinary degree. Of late, fifty-eight new Japanese business houses have been established in Peking, and a new Japanese settlement has started in Tientsin. In Korea, Japanese merchants have crowded out foreign competition. Their shipping lines are taking the place of those of European companies, and the Japanese are successful in gaining the sympathy of the Chinese.

SIMON W. HANAUER,

FRANKFORT, *April 21, 1901.*

Deputy Consul-General.

RAILWAYS IN JAPAN.

In Japanese imports of machinery and locomotive and other engines, the United States is surpassed only by Great Britain, which continues to receive more than half the money sent out of Japan for these manufactures, while the United States received a little more than one-fourth in 1900 and a little less than that proportion in 1899. The whole amount paid by Japan for this class of manufactures in 1900 was \$5,674,546, about one-fifth being for locomotive engines.

The railways of Japan are of two classes: Government lines, which, at the close of 1899, amounted to 832¾ miles; and private railways, which at the same date included 2,806 miles. The latter are operated under Government charters, which may be permanent or provisional. During 1899, permanent charters were granted for 176½ miles and provisional charters for 261½ miles, showing a decrease in activity of construction of over 66 per cent, as compared with 1898. This falling off in building operations is probably due to the depression prevailing in trade and financial circles, and it is likely that new enterprises will be projected with the easing of the money market. It has been estimated that 7,000 miles of railroad would not suffice for the needs of the country. The following statement, summing up the latest statistics obtainable, shows the situation at the end of 1899:

	Miles.
Government double-track lines.....	158
Government single-track lines.....	675
Private double-track lines.....	92
Private single-track lines.....	2,713
Total.....	3,638

Besides this, there were roads not yet opened for traffic, but for which charters had been obtained, as follows:

	Miles.
Government lines.....	1, 230
Private lines.....	2, 483
Total.....	3, 713

For constructing these lines, the Government had paid out on lines already opened for traffic 69,679,049 yen, equal to \$34,700,166, or an average cost of \$41,670.89 per mile. The paid-up capital of the private companies amounted to 173,667,846 yen, or \$86,486,587, making an average cost of \$30,833 per mile. In March of this year, an additional 17 miles of Government railway was opened to the public, this being the first Government line in Kiusiu. The Government railways are under the direct supervision of the Railway Works Bureau and the Hokkaido Railway Office, while the private railways are controlled by various companies under regulations prescribed by the Government. There are 103 of these companies, of which 43 have roads open for traffic, 15 have not entered on practical operations, and 45 have provisional charters only.

The Japanese have taken kindly to the railway, and crowds of people enter and alight from every train coming into the principal stations. The strong feeling of caste which prevails makes it necessary to furnish first, second, and third class cars on every train, and the first-class cars are usually subdivided into compartments, making possible a degree of privacy unknown to the ordinary traveler in America; but even the first-class cars are less luxurious in their furnishings than the common cars on most of the poorer roads in the United States. Sleeping cars have been introduced during the past year on the Government line between Tokyo and Kobé, and are eagerly patronized and profitable. The charge for a berth is 4 yen (\$2), in addition to a first-class ticket. Dining cars are being constructed.

A Japanese expert, Mr. Kyoichi Murakami, who has lately traveled in the leading countries of the world to study their railroad construction and management, is reported to have said that the United States surpassed all other countries in the equipment of its roads in every respect, but he objected to American locomotives because of their greater consumption of coal. America furnishes more than two-thirds of the rails used in Japan, having surpassed in low prices and promptness of delivery both England and Germany, which formerly held this trade.

E. C. BELLows,
Consul-General.

YOKOHAMA, April 15, 1901.

TEA TRADE OF CHINA IN 1900.

Notwithstanding the serious interruptions to the foreign trade of China last year, the final results are not as disastrous as was feared. Imports at Fuchau fell to 5,644,110 haikwan taels, against 6,800,960 haikwan taels in 1899 and 5,816,862 haikwan taels in 1898 (\$4,067,710, \$4,900,092, and \$4,036,902).*

Of goods exported, tea is the principal item. The total export of that commodity for 1900 was 40,342,288 pounds, against 44,148,650 pounds for 1899, 38,718,940 pounds for 1898, and 35,887,522 pounds for 1897. As compared with 1890, this is a falling off of 33 per cent.

The change of destination of shipments of tea is also worthy of note:

Destination.	1890.	1901.
	<i>Pounds.</i>	<i>Pounds.</i>
Europe.....	25,661,017	11,299,703
Australia.....	15,250,738	6,514,722
United States and Canada.....	3,404,957	11,855,217
South Africa.....	1,543,652	1,378,864
North China.....	8,884,480	5,033,569
South China.....	4,713,889	4,260,213
Total.....	59,458,739	40,342,288

The probabilities of continued interference with the tea trade during 1901 by the Boxer troubles seem to have influenced American purchasers, and the result was one of the largest shipments of tea ever made from this port to America.

The shipment to Europe fell off 5,000,000 pounds from that of the previous year, while that to Australia increased about 1,000,000 pounds.

The total export of black tea from all China was 115,016,533 pounds, which was 9,620,200 pounds less than in 1899 and 2,165,467 pounds more than in 1898. Of green tea, 200,425 piculs (26,716,652 pounds) were shipped; of brick tea, 316,923 piculs (42,245,836 pounds); and of tablet tea, 3,027 piculs (403,089 pounds).

The markets of Europe at the beginning of last season were overstocked with Fuchau teas, and the prices realized were the lowest ever known.

SAMUEL L. GRACEY,

FUCHAU, April 18, 1901.

Consul.

*The haikwan tael was estimated by the United States Treasury at 72.07 cents in 1900, 72.05 cents in 1899, and 69.4 cents in 1898.

EXPORTATION OF SIBERIAN BUTTER.

Russian papers state that the Secretary of the Treasury of Russia has entered into a contract with a commercial house at Riga to establish a direct line of steamers between that city and London, for the purpose of exporting those agricultural products of Russia which are easily spoiled en route.

The Riga firm has had refrigerator steamers built, and weekly trips will be inaugurated in the near future.

Fast freight trains will leave the station at Ob, on the Siberian Railroad, for the shipment of butter. Each train will consist of twenty-five special cars with refrigerating equipments, containing about 8 tons of butter per car. The route is by way of Kainsk, Tatarskaja, Omsk, Petropaulowsk, Kurgan, Chelyabinsk, Batraki, Rusajewka, Moscow, and Bologoge to Riga, where the train will arrive every third Thursday. As soon as the line between Moscow and Kreuzburg is completed, this route will be taken, the distance being shorter.

For these special trains, the railroads have had 138 refrigerator cars built. Ice will be supplied at the various stations of the Siberian and other railroads.

After arriving at Riga, the butter will be inspected, and, if necessary, repacked for steamer transportation. This fast freight train will also transport other articles, provided they do not interfere with the shipments of butter. In this manner, 35,000 barrels of butter will be exported during the summer, each barrel containing from 130 to 150 pounds.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *April 27, 1901.*

PACKING GOODS FOR FOREIGN MARKETS.

The following is extracted from the annual report of Consul Fleming, of Edinburgh, which will appear in full in *Commercial Relations*, 1900.* The suggestions herein contained are thought of sufficient importance to warrant publication in this form. Mr. Fleming says:

The importance of the proper packing of goods for export is a matter concerning which there is no room for two opinions. If it were not common knowledge that the arrival of merchandise at its destination in good condition is as essential to foreign business as

* Volume II (in press).

it is to home trade, the fact that space in the Paris exposition was devoted to object lessons on packing would show that the commercial world recognizes it as a vital part of the process of getting and holding any market. The manufacturer or exporter who wins a reputation for the best packing of articles has a distinct advantage in the foreign trade, prices and quality of goods being satisfactory.

I have undertaken to gather information and collate opinions of manufacturers, importers, and exporters, and well-informed shippers, casemakers, and stevedores in this district on the subject of packing goods. This information and these opinions relate to imports from and exports to nearly all countries, covering many kinds of merchandise. This work has been done with the idea that possibly American manufacturers and shippers will derive, from the facts and views stated, some benefit in the way of suggestion. At the risk of giving much that may be superfluous, I have gone into details. No comparison is attempted of the methods of packing in different countries, the purpose being to describe or indicate the best method, irrespective of the country in which it is practiced. But there are some exceptions to this rule, wherein American packing is directly commented upon.

With reference to the packing done by United States manufacturers and other producers and the export houses, little fault is found with it, especially of machinery, hardware and wood ware, bottled and canned fruit, and catsups, sauces, and the like. There is a discordant note as to one kind of raw fruit—apples—the objection being, however, not to the packing of the fruit, but to undersized barrels.

There is also criticism of cheese boxes. One provision dealer writes that he has "always considered the wood protection insufficient, and especially the fastening of the lids, which might be improved, as a great many come here with the lids off, and in this case the cheese is likely to get damaged, in addition to the damage to the box itself." Some fault is found, also, with the American packing of clocks, bicycles, and bicycle parts, wood pulp, hams, cotton-seed meal, rosin, tobacco, and a few other articles. In most cases, the complaints relate to defects which could easily be remedied.

In these paragraphs, the words following the figure (1) denote the more important forms in which an article is shipped, the most common form being stated first; the matter following the figure (2) describes or indicates the method of packing considered by shippers and importers to be the best, or gives the opinion commonly held here regarding the way packing is now done. Where there is practically only one form of package or only one way in which an

article is prepared for shipment, the figures are omitted, and the matter relates to the best method of packing or some feature of it, or comments on present methods. I should add that, although the export case universally recognized as the best for all goods requiring special protection from moisture is a tin-lined or zinc-lined case, where the word case is used in these pages, the ordinary wooden case is meant, unless otherwise stated.

Acids.—(1) Barrels, baskets, kegs, carboys. (2) For dry acids the barrels should always be paper lined to prevent leakage.

Alc.—(1) Barrels, cases, kegs. (2) Usually 96 half bottles, stone, wrapped in loose straw, are put in a barrel and packed thus: Bottom tier of barrel, 24 bottles, standing, with heads upward; second tier, 25 bottles, necks downward; third tier, 27 bottles, with heads upward; top tier, 20 bottles, necks downward. When packed in cases, about 10 dozen pints to a case, the stone bottles are inclosed in straw envelopes. Strong barrels and cases are required.

Alum.—(1) Bulk, bags. (2) Cake alum, now generally shipped in bulk, should be packed in bags to save shortages. It is thought that the change would prove economical in the long run.

Ammonia.—(1) Cylinders, packages. (2) Cylinders should be strongly cased over for protection.

Aniline dye.—(1) Barrels, packages. (2) All casks or barrels should be paper lined.

Apples.—(1) Barrels, cases, bags, baskets. (2) American apples are generally well packed in the ordinary way, the barrels remaining in fair condition as long as any other, but it is said that the fruit keeps in a better state when shipped in barrels ventilated by small diamond-shaped holes cut in four places in the staves. This is a Dutch idea, and the apples from Holland arrive in a more marketable condition, as a rule, than those from any other country, although the quality is perhaps inferior.

Bagging.—(1) Bales, bundles, packages. (2) Bags are in press-packed bales, covered with strong jute cloth and bound with steel hoops.

Beer.—(1) Barrels, kegs, cases. (2) It is considered essential that beer barrels be as free as possible of tannin and always iron bound.

Bicycles.—As a rule, the material of which American crates are made lacks the proper strength. The same is true of the cases in which bicycle parts are shipped. Solid crates and cases are required, as rough handling is always to be expected.

Biscuits.—Tins packed in close-fitting cases, any spare space being filled in with straw.

Bleach.—Barrels lined with stout paper.

Bolts and nuts.—(1) Boxes, bags, packages. (2) Extra-strong cases and tight packing necessary, owing to the weight. Bolts shipped in bags are sometimes damaged by water and dampness and otherwise.

Bone meal.—(1) Bags, cases, packages. (2) Bags well made of strong material.

Books.—Owing to the weight of books, large boxes or cases are unwieldy. It is best to pack books back and front edges alternately, with paper between every row and every layer. Leather-bound books and other valuable works are wrapped up separately in paper. The box should be lined with waterproof paper. It is necessary to hoop each box and secure with screws.

Boots and shoes.—The common style of case firmly packed and secured around the ends fully serves its purpose everywhere.

Bottles.—(1) Mats, crates, bales, bags, cases, barrels. (2) In shipments of the

ordinary whisky and wine bottles, there is generally a considerable loss by breakage. The most satisfactory method of shipping is in mats well packed with straw.

Brandy.—(1) Cases, barrels, hogsheads, octaves, tuns, vats. (2) Great care must be taken to properly secure cases at the lid and barrels at the bung-hole.

Brooms.—(1) Bales, bundles, cases. (2) The importance of stoutly binding bales and bundles must not be overlooked; otherwise, the best handling will not save them from damage.

Burlaps.—Bales covered with jute cloth and steel hooped.

Butter.—(1) Boxes, tubs, barrels, cases. (2) Danish butter, the standard article here, is shipped in white-pine cubical boxes, each box containing 56 pounds, thin paper separating the butter from the wood.

Caoutchouc.—(1) Bags, bales, cases, barrels. (2) The bags must be made so secure that they will stand the roughest usage.

Caramel.—(1) Barrels, kegs. (2) Paper lining is necessary to prevent leakage.

Cement.—(1) Bags, barrels, crates, bulk. (2) Bags of strong quality are required, and in this form the cement is best adapted to commercial uses.

Chairs.—The bindings of cases and crates too often prove insufficient. Care should be taken to make the protection adequate and strong.

Cheese.—(1) Boxes, cases, barrels, tubs. (2) Boxes of good material should be used in the cheese trade, and the lids so well fastened that they will not come off in handling at the wharves. Some Canadian shippers of cheese are more careful in this respect than the American shippers.

Chemicals.—(1) Bags, barrels, bales, cases, drums, packages. (2) For chemicals in a dry state, casks and cases (when the latter are not tin or zinc lined) should always be lined with thick or very tough paper.

China ware.—(1) Barrels, hogsheads, tierces, cases. (2) Special care must be taken to pack the barrels closely with straw. The ware is wrapped in tissue paper and delicate ware or vases in corrugated packing paper.

Clocks.—In many American cases, the wood protection is too slight. Good and strong material should be used.

Coffee.—It is questionable whether the average bags in which coffee and coffee husks are shipped are strong enough. There is much loss at most ports in handling.

Colors.—(1) Barrels, bags, bales, cases, packages. (2) Barrels properly lined with paper.

Copper ware.—Extra-strong cases are required and they should be of moderate size.

Cordage.—(1) Bales, bundles, cases. (2) Bales bound with the same material and hooped with iron.

Cork.—(1) Bales, bags, bundles. (2) Bales wrapped in coarse bagging and hooped.

Cotton.—The improved packing of cotton in the common way, by the square-bale compress companies, has attracted attention on this side. Cotton dealers are very favorably impressed with the round bales, which bring the cotton in excellent condition, as a rule.

Cotton goods.—Manufactures of cotton and linen yarns are packed in the same way as linen. (See Linen.)

Curtains (lace).—Each pair wrapped in white casing and yellow lining and then packed in a bale covered with waterproof paper and canvas. Large shipments are made in wooden cases lined with waterproof paper.

Cutlery.—Wrapped in thin paper, packed in cardboard boxes, and then in a tin-lined case.

Earthenware.—(1) Crates, cases, barrels. (2) Packed in straw in wooden crates. Where liquid gold is used in decorating, the ware is wrapped in tissue paper.

Eggs.—It is thought that the cases now used in commerce lack strength, and that a little improvement in this respect would bring profitable results to shippers everywhere.

Envelopes (straw).—(1) Bales, bundles, bags. (2) The proper bales are well bound with wire.

Esparto.—The bales are strongly bound with ropes made of the same material.

Farina.—(1) Bags, barrels. (2) The ordinary bags used are hardly as substantial as they should be. There is loss from leakage. A bag of slightly better material would be a perfect protection.

Fish.—(1) Barrels, bags, bundles, cases, kegs, bales. (2) Nearly all dried fish are properly shipped in bundles made of bagging and mats sewn together. Salted dried fish are best in tin-lined cases. Herrings are generally packed back downward in barrels bound with wood, iron hooped. Fault is found with the fish barrels commonly used here. It is held that they should be bound with iron, not wood.

Fishing rods.—Tightly bound at the ends and in the middle with cord and packed in a strong wooden box the length of the rods.

Flax.—(1) Bales, packs, bobbins. (2) The bale is covered with a heavy mat made from the inside of a tree bark cut in strips about half an inch wide and woven together; sometimes press packed, if necessary, to economize space. Exported from Scotland, the bale is commonly bound with ropes made of flax, which perhaps secure it sufficiently.

Flour.—(1) Sacks, barrels. (2) The jute sack is a much better protection than the cotton, as it is stronger. Only winter-wheat flour comes in cotton bags. Bakers on this side prefer to have cotton bags for this class of flour, which always comes in half sacks. But flour dealers say that the cotton bags do not stand the wear and tear in transit so well as jute. The quality of the cotton, however, has been much improved in the last two or three years, importers insisting on getting heavier and stronger sacks, as, when they burst, the millers have had to pay the loss when the inspectors certified that the texture of the cotton was not sufficiently strong; so that for their own protection they are now putting flour into more substantial bags.

Furniture.—Finished furniture of value, such as desks and bookcases, reaches its destination in the best condition when covered with paper and then with matting, or some other soft material, before being crated or cased.

Fruit (small).—(1) Boxes, cases, bags, baskets, bales, sieves, barrels, crates, chips. (2) The boxes, cases, and baskets in which most of the different varieties of fruits are now received here from the Continent and America are quite sufficient for their purposes, but it is suggested that raisins should be packed in heavier boxes than at present, as there is much waste through weak boxes.

Gelatin.—(1) Cases, bags. (2) The finer quality of gelatin is inclosed in cardboard boxes, which are wrapped in paper in suitable parcels, and these parcels are then packed closely in a wooden case.

Glassware.—(1) Cases, barrels, crates, tierces. (2) In cases or barrels, properly stowed in hay or straw, perfectly separating each article.

Glass plates.—From 12 to 60 plates are put in a case, tissue paper being laid between the plates to prevent scratching. The inside bottom of the case is first covered with a layer of wood shavings, then come the plates, then on top a layer of wood shavings. The box is somewhat larger than the plates, so as to allow shavings to be stuffed all around. From 8 to 10 of these boxes are then packed in a large surcase, tightly stuffed in with straw, and this surcase is hooped with iron.

Glucose.—(1) Barrels, bags. (2) Barrels should be properly hooped to prevent expansion and leakage.

Golf goods.—Clubs are put in a large box, with sheets of paper between each

layer of clubs to protect the varnish on the heads. Balls in 1-dozen boxes, each ball wrapped in paper, are best packed in a box about 1½ inches thick, which should be hooped with iron.

Granite.—As a rule, the unpolished blocks carry well naked, though it is better to stow them in straw on the ship. When polished, the blocks must be packed in extra-strong crates or cases.

Grindstones.—(1) Barrels, cases. (2) Put in strong barrels of a size suited to the diameter of the stones and tightly pack with shavings or straw.

Grits.—Bags should be of first-class quality.

Guano.—Only good, stout bags are satisfactory.

Hair.—(1) Bales, bags. (2) Bales are wrapped with bagging.

Hams.—(1) Barrels, cases, bags. (2) There is more or less complaint that cases of American hams are not substantially bound. They should be rendered secure enough to withstand very careless usage.

Handles.—(1) Cases, crates, bags, bundles. (2) Handles in any sound case are always secure enough, as are short handles in bags. To put in bundles is poor packing, unless the ends are very firmly bound. Those from America are cased and come in first-rate condition.

Hardware.—(1) Cases, barrels, crates, packages. (2) Cases from the United States are notably strong. The best material is used in making them.

Hay.—Bales should be bound with strong wire.

Hides.—(1) Bundles, bales. (2) Mostly imported here in a raw condition in bundles of one each, properly bound with stout twine.

Hoops.—(1) Bundles, bales, coils. (2) Largely put up in bundles of moderate weight, which are bound with their own material.

Hosiery.—(1) Cases, packages, bags. (2) The finer grades of hosiery, as well as gloves and mitts, are put in cardboard boxes and then cased. The coarser grades of knit goods are sometimes shipped in the form of paper parcels, but it is best to first wrap the goods in light oilcloth.

Implements.—Well-made cases suited to the goods, such as are now used by American exporters in this line. It is the common testimony that all implements from the United States arrive in better condition, as a rule, than those shipped by English and continental makers.

India rubber.—(1) Bags, cases, barrels. (2) When not in cases, it is best packed in bags made of canvas.

Ink (printing).—(1) Cases, barrels. (2) The ink is put in tins of various sizes, then these tins are carefully packed in cases to contain not more than 200 pounds, for easy handling. The tins, before being packed in the case, are properly wrapped with paper. Sometimes the tins are hermetically sealed, and when packed in removable lids, the lids are gummed on with waterproof sheeting.

Ironware.—(1) Cases, blooms, bundles, crates, barrels. (2) As with general hardware, the cases must be strongly made and secured with iron bands. They are now, as a rule, quite satisfactory, especially those coming to this market from the United States.

Isinglass.—In bottles, packed in the best of cases.

Jute.—(1) Bales, bags, bundles. (2) Bales from India have no covering. The jute and jute tissues are exported from Dundee in the same form as the bales received from India; also from Dundee and elsewhere in bales covered with bagging and hooped with iron. Jute waste is generally in bales or bundles, bound with ropes made of the same material.

Lard.—(1) Tierces, pails, casks, firkins. (2) The oak tierces in which lard comes from America hold about 336 pounds. The lard arrives in good condition if there has been no shifting of cargo from rough weather. Lard comes also in 112-pound

casks. The pails, containing 28 pounds, are regarded as very neat packages, and they seldom arrive here in bad condition.

Leather.—(1) Bales, bundles, cases. (2) Bales are properly bound with rope or stout twine. Leather from America is shipped in this form.

Lime (chloride).—Fault is here found with the common barrel in this trade. It should be more substantial.

Linens.—(1) Cases, bales, hampers. (2) Fine linens are put up in small parcels, with a sheet of white paper next them, and packages are wrapped in strong brown paper; these parcels are put together and inclosed in stout canvas or packing sheets; then all are inclosed in oilskin or waterproof paper and packed in a wooden case, which is either roped or bound with iron hoops. Sometimes no case is used, and the package in this state, covered with bagging and well bound, is called a bale. Coarser goods are packed in a similar way and put in bales, as a rule.

Linoleum.—(1) Rolls, cases. (2) The pieces are cut in lengths and rolled upon wooden rollers. The roll is then covered with canvas or hessians and tied up, and the goods are shipped in this state. When the goods are of fine quality, the roll is frequently put into a case. It should be added that in rolling fine goods, thin tissue paper is sometimes placed upon the pattern side of the cloth, so as to prevent the colors from rubbing against the back in the process of rolling.

Lithographic stones.—Breakage is not uncommon, owing to weak cases. The wood protection should be as complete and solid as possible, without rendering the case unwieldy.

Machinery.—(1) Cases, crates, pieces. (2) The best practice in packing machinery—heavy or light—is to firmly fix every piece to the case, either by bolts going through the case, or by battens arranged inside to securely lock the various pieces in position. With heavy machinery, no loose material should be used in any case. The American as well as the Scotch packing of machinery in general has been on this plan, and is everywhere commended.

Maps.—Packed in cases lined with oilcloth.

Marble.—(1) Blocks, frames, cases. (2) The naked blocks of rough marble are usually well enough protected with straw on shipboard. The frames intended to protect the edges of polished shafts or blocks are frequently not as substantial as they should be, and injury results. Finished marble of much value should always be cased.

Meal (cotton seed).—Good bags are required in this trade. There has long been considerable waste due to the bags being of inferior material, or badly made of good material. This applies especially to American cotton-seed-meal bags.

Meat (canned).—American cases are of first-class material, but occasionally show carelessness or haste in the packing house, being insufficiently nailed or bound together.

Millboard.—(1) Packages, bales, cases. (2) The packages or bundles are bound with stout twine.

Molasses.—For some years, the barrels were of poor quality and gave much trouble. The iron-bound barrels now in use are uniformly good.

Moss litter.—(1) Bales, packs, bundles. (2) Bales well bound with wire.

Moldings.—(1) Cases, bundles. (2) Coarse grades have no covering and are simply bound with ropes, which are considered hardly adequate. The cases in which gilt moldings are brought from America could be improved, being rather frail.

Musical instruments.—These are uniformly well cased at present, in both the United States and Germany. The instruments are firmly fixed, and the edges and corners fully protected.

Nails.—(1) Bags, kegs, packages, boxes. (2) Of course, kegs are a better pro-

tection from dampness than bags, but bags are more easily handled and are almost universally used, not for this reason only, but for the more practical one of economy. Bags of nails for Great Britain should always contain 112 pounds each.

Netting (wire).—(1) Rolls, packs, bundles. (2) Mostly in moderate-sized rolls. It is important that these be firmly and smoothly fastened at the outer edge.

Nets (fishing).—(1) Bales, coils. (2) Each net is lapped up separately in the form of a web. From 4 to 6 of these webs are put into one press-packed bale, which is covered with oilcloth and then with Hessian wrapper.

Oats (Quaker).—It is thought that the cases would be considerably improved by the use of a little stronger material.

Ocher.—Shippers are advised to always be careful to see that each barrel is well lined with paper, to prevent waste and also damage to other goods.

Oil cake.—(1) Bags, bulk, bales. (2) Nearly all kinds of oil cake are imported into this market in bulk, except from the United States. The bags used by our producers and exporters are substantial and satisfactory.

Oils (other than petroleum).—The casks generally used in this trade, from the United States and the Continent, are not regarded as up to requirements. There is a good deal of waste and consequent damage to other merchandise. The defect lies, I understand, not in bad workmanship in the construction of the casks or barrels, but in poor wood.

Paint.—(1) Cases, barrels, cans. (2) Principally in cans packed in cases. The matter of importance is to make the tops of the cans secure. This done, any ordinary case is sufficient.

Paper pulp.—(1) Bales, packages. (2) The best bales are bound with bagging and firmly wired.

Paper (rolls).—The paper covering ordinarily used affords ample protection, as a rule, against the weather and rough handling, but a tougher covering, either paper or some other material, would prevent much of the damage done to these rolls from cutting.

Paper stock.—Press-packed bales, covered with canvas and bound with iron hoops.

Paraffin scale.—Good barrels are necessary. At present, there is much waste. There is no complaint as to the common barrels for paraffin wax.

Pavement (wood).—In packing on shipboard, it is well to provide a "stowing" of straw.

Petroleum.—Extra-strong barrels are required for this trade. As a rule, the barrels now used, both in America and Russia, are of this class.

Pig products (feet and heads).—(1) Barrels, tierces, cases. (2) Substantial, iron-bound barrels. These are the kind uniformly used by shippers in Denmark.

Plates (electrotyped and stereotyped).—In solid wood cases of suitable size. A single plate is rolled in paper, with the back of the plate against the wood; then each two plates are packed back to back (rolled in paper), and at the end of the case another single plate, protected by paper, is put in.

Plants.—(1) Hampers, bales, barrels, baskets. (2) Whatever the form of package, an ample binding of the plant with straw is the essential thing. It is held that nothing serves the purpose of protection as well as straw.

Potash.—(1) Barrels, drums, kegs, cases. (2) All barrels and kegs should be well lined with paper.

Printed sheets.—These are generally packed flat and made into bundles, the bundles containing varying numbers of copies, according to the size of the book. In some instances the sheets are folded, and when this is done each copy is, as a rule, done up in a sheet of the printed paper, so as to avoid confusion. The bales of printed sheets are packed in the usual export cases without zinc lining.

Rags.—Bales are press-packed and hooped with iron.

Rice.—(1) Bags, barrels, cases. (2) The vast bulk is in bags of good quality, as the trade requires. Finer bags are necessary, of course, for rice meal, and they are not always provided, and as a consequence there is a good deal of loss from leakage.

Rope.—(1) Coils, bales, bundles. (2) Coils and bales are properly covered with a sacking wrapper.

Rosin.—Barrels of only the ordinary strength are needed. Some of those coming from the United States are rather frail, and there is considerable loss.

Seed.—(1) Bulk bags, bales. (2) While cotton seed and linseed are bulk articles (though Russia ships the latter in bags to some extent), the fine seeds, like clover, must be in the finest cotton or cotton-linen bags to prevent loss by leakage. On the part of some shippers, there is an apparent disposition to risk much in this matter.

Shells.—Bags of crushed shells (for poultry) come to this port in bad condition, now and then. The bags are of poor quality. Some of them are from United States shippers.

Starch.—(1) Cases, bags, packages, barrels. (2) Mostly in bags from the United States, received in good condition.

Straw.—Press-packed bales, bound with wire.

Sugar.—(1) Bags, cases, barrels. (2) Nearly all sugar is in bags of substantial quality and perhaps the minimum loss is sustained by the trade.

Sugar candy.—(1) Boxes, packages, bags. (2) Too many of the boxes or cases at present are frail, and damage is frequent.

Thread.—Made up in suitable parcels and packed in cases lined with waterproof paper.

Timber.—Largely in a rough state. There is in this part of Scotland a growing trade in dressed wood of all kinds from the United States, shipped in bundles; the pieces should be kept as nearly as possible all of one size in each bundle, and more securely bound than at present.

Tobacco.—(1) Hogsheads, tierces, cases. (2) There must be special care to make firm the heads of hogsheads. It is said at this port that indifferent work in "heading up" gives practically all the trouble experienced in handling tobacco.

Tools.—In cardboard boxes, packed in strong cases of convenient size bound with hoop iron.

Tubes.—(1) Bundles, cases, pieces. (2) At most European ports, there is a decided objection to heavy bundles of iron or steel or other metal. Care should be exercised in packing, to keep the bundles a moderate weight.

Turpentine.—Extra care is suggested as necessary in heading up barrels intended for turpentine.

Twine.—(1) Cases, bales. (2) The practice is to make up half-pound balls in parcels of 25 or 30 pounds, and pack in cases containing not more than 500 pounds, lined with waterproof paper.

Varnish.—(1) Barrels, cases. (2) Both barrels and cases must be well made and rather heavy in material. Continental barrels are sometimes too light and weak.

Vegetables.—(1) Bags, bales, hogsheads, barrels, baskets, hampers, boxes, cases. (2) Principally in bags and baskets, according to the nature of the goods. Bags, baskets, and other packages from Egypt are not as strong and satisfactory as those from Spain. Potatoes are well put up in Malta and arrive in good condition. Little complaint is made as to the packing of vegetables from the United States; but the Spanish exporters probably are most successful in this respect.

Vinegar.—(1) Barrels, cases. (2) The statement as to turpentine barrels (see above) applies to those used for vinegar. Not a few barrels are defective in the heads, and the loss from leakage at this port is considerable.

Vulcanite and celluloid goods.—Small goods are usually packed 1 dozen in a box,

or else on cards; each box is wrapped in oil paper, or a thin paper of good quality, and then cased.

Washboards.—Bundles bound with wood "lining," or broad strips, are considered proper packages, and there is seldom any serious loss from breakage or other damage.

Wheels.—(1) Crates, cases. (2) The American packing is regarded as excellent, the wood protection being as complete and substantial as could be desired.

Whisky.—(1) Cases, barrels. (2) Usually in cases of 12 bottles, called reputed quarts, capacity 6 to the gallon. The bottles (after being labeled and capsuled) are packed each in a thick straw envelope and these placed heads and tails on their sides in the case in two rows of 6 each, the cases being of such dimensions that with the "spring" in the straw the contents fit very tightly when the lid is nailed down. Some shippers pack in binned cases, lined with corrugated paper and filled up with straw. Iron-hooped oak barrels are used for bulk whisky. Barrels made of American oak staves are regarded as the best.

Wire.—(1) Reels, bundles. (2) The obvious requirement is to perfectly secure the ends of the wire. Yet this is not always done.

Wood pulp.—Bales should be in gunny bags, or wrapped tightly in sheets of the pulp, and tied so firmly that the cord or twine will not be removed or loosened by the most careless handling. Much fault has been found with the packing of wood pulp received from the United States and Canada. Not only is it, as a rule, without the covering of bagging used by Norwegian shippers, but the tying up is poorly done, and there is nearly always loss through the breaking of the frail binding of twine.

Wood ware.—(1) Bundles, cases, bales, bags. (2) From the United States this ware is chiefly in cases at the present time, and that is the most satisfactory way to send these articles. The trade highly appreciates the kind of packing that brings goods in first-rate condition.

Woolens.—(1) Cases, packages, bales. (2) In packing separate lots of various sizes, the method here regarded as best is this: The lengths of cloth are rolled on boards, which are then withdrawn, and several lengths are put together in paper and tied up with twine. The parcels are then packed in a strong wooden case, lined with oilcloth, and hooped round with iron bands. In packing large quantities, each roll is wrapped in thin oilcloth.

EXPORT TRADE NOTES.

An American merchant, who has during the past three years conducted a very successful depot in a German city for the sale of miscellaneous American manufactured goods on commission, writes as follows concerning some of the minor difficulties which he has encountered in the course of his business:

In the first place, there are so many experiments—hit-or-miss trials—of goods by people who know nothing about conditions here or the requirements of the German market that a good deal of stock has come over on trial and is later thrown on the market and sacrificed when the experiment has proved a failure.

Secondly, as soon as one has found a line which will sell, and has got a trade established, our American friends will make improvements in that article until the improved goods hardly look like the originals, while the stock here becomes, as a result, depreciated and often valueless.

Then, there is the difficulty with the German custom-house. One can not count

from one shipment to the next one and know certainly that the latter will be classified as the former was or as the samples were. It has happened to me frequently of late that goods which originally came in at 10 marks (\$2.38) duty per 100 kilograms (220.46 pounds) were found to belong under a much higher classification, viz, 24 marks (\$5.71) per 100 kilograms, as soon as the importations reached any important volume. All these are points concerning which American exporters should be much better informed and which they should take into account in dealing with their agents or purchasers in Germany.

BERLIN, *May 4, 1901.*

FRANK H. MASON,
Consul-General.

BICYCLE AND AUTOMOBILE EXPOSITION IN LEIPZIG.

The fourth German exposition of bicycles and automobiles will be held at the Crystal Palace at Leipzig in October of this year. United States automobile and bicycle builders should not neglect this opportunity to display their goods. I believe there is little to be gained in the ordinary bicycle line, but machines driven by gas, electricity, etc., have a good future in this market. As a rule, the French manufacturers take little notice of such exhibitions, but in this instance the French consuls in Germany are using every means in their power to bring the fact home to the French manufacturers of automobiles that they will lose a splendid opportunity if they neglect to display their machines at Leipzig in October. They claim that the time is at hand to exhibit here good, well-built automobiles; that if the French manufacturers overlook this chance, other countries will profit by their negligence.

I believe it a wise policy to send only the best machines and to keep prices down. The latter should not run over \$700 at the most.

Our manufacturers should make a study of the automobiles built in Germany, so as to guard against the trouble United States bicycle exporters had some years ago in replacing broken parts. I would also call attention to the bad policy of flooding this market with inferior machines, as was done in some instances in the bicycle trade.

CHEMNITZ, *April 30, 1901.*

J. F. MONAGHAN,
Consul.

THE LEIPZIG SPRING WHOLESALE FAIR.

The Leipzig Spring Wholesale Fair, or, as it is better known, the Leipzig Oster Vormesse, is assuming such large proportions and becoming such an international factor in so many different industries that a detailed report upon it will perhaps be of interest to American merchants and manufacturers.

The Wholesale Messe up to 1896 was combined with the Easter Messe, or retail fair, during the first ten days or two weeks of which orders were taken for the future delivery of goods. The trade has increased very materially since the Vormesse has been separated from the Easter Messe, the former opening annually on the third Sunday before Easter and lasting eight days and the latter opening eight days after Easter and running three weeks. It is impossible to ascertain, or to even estimate, the value of the goods which change hands at the Messe, but it is safe to say that it runs up into the millions. In 1896, the merchants of Berlin attempted to start a wholesale messe, which it was intended would in time practically kill the business done at the Leipzig Messe, but the project proved unsuccessful.

The Vormesse is of great benefit to buyers and sellers alike; the latter are given an opportunity of observing, at close range and with but little expense, just what their competitors are doing in the way of producing novelties, thus obtaining new ideas and notions from one another; the former, of comparing the articles and prices of a large number of firms before placing their orders. It is not necessary for them to travel from place to place, as is often done, in order to examine samples, arrange prices, and buy goods.

VALUE TO LEIPZIG.

The fair brings vast numbers of merchants to the city from all over the world, who come to buy and sell their wares. During the week of the Vormesse, all the hotels and boarding houses are taxed to their full capacity; indeed, many who have not thought to engage rooms beforehand are forced to find lodgings half an hour's ride by train from Leipzig. The money which these visitors leave in the city amounts to a very large sum annually. The hotels, boarding houses, theaters, restaurants, cab companies, street-car companies, and many others share in the profits which result from the large influx of merchants.

ARTICLES BOUGHT AND SOLD.

The principal articles bought and sold are ceramics, glassware, leather and textile goods, toys, hardware, cheap jewelry, furs, and fancy articles. The Vormesse is under the control of the city authorities and the chamber of commerce. The exhibitors are not allowed to do any retail business, but must confine their trade to taking orders from samples for the future delivery of goods.

THE VORMESSE DIRECTORY.

The chamber of commerce issues a directory, which gives the address of every firm, as far as possible, exhibiting at the Messe, and just how to find it. The directory gives the number of hands

employed at the factories of many of the different firms represented. A buyers' directory is also published by private parties. It gives the names and places where the buyers are stopping in Leipzig, but this book is considered by many to be inaccurate and unreliable.

ATTENDANCE.

The following table gives the number of firms which have attended the Vormesses of 1900 and 1901, the kind of goods bought and sold, and the countries they are from, the goods being placed in three classes, Class I embracing ceramics, glassware, metal and hardware goods, bric-a-brac, toys, etc.; Class II, leather, furs and skins, and bristles; Class III, textile goods. In the table of buyers will be found an additional class (IV), under which is stated the number of buyers who purchased in more than one of the three classes.

Sellers.

Country.	1900.				1901.			
	I.	II.	III.	Total.	I.	II.	III.	Total.
Germany.....	2,149	415	482	3,046	2,394	418	498	3,310
Austria-Hungary	207	36	1	244	258	36	4	298
Russia	7	.....	.....	7	10	.....	.....	10
Denmark, Sweden, and Norway.....	4	.....	.....	4	4	.....	.....	4
Great Britain and Ireland.....	9	5	.....	14	17	5	.....	22
Netherlands, Belgium, and Switzerland	13	14	.....	32	38	14	.....	52
France, Spain, and Italy.....	28	4	.....	32	53	5	.....	58
North America.....	3	3	.....	6	5	3	.....	8
Other countries.....	.....	2	.....	2	.....	2	.....	2
Unclassified.....	23	.....	.....	23	26	.....	.....	26
Total	2,437	490	483	3,410	2,791	497	502	3,790

Buyers.

Country.	1900.				1901.			
	I.	II.	III.	IV.	I.	II.	III.	IV.
Germany.....	3,351	782	839	326	4,892	893	953	458
Austria-Hungary	313	98	16	11	467	153	24	20
Russia	61	92	6	6	82	99	12	10
Denmark, Sweden, and Norway.....	120	25	11	6	152	36	19	10
Great Britain and Ireland.....	100	31	.....	.....	131	41	.....	.....
Netherlands, Belgium, and Switzerland	172	32	3	2	229	41	6	3
France, Spain, and Italy.....	70	27	3	2	91	36	4	3
North America.....	82	26	3	1	105	35	6	2
Other countries.....	30	22	5	3	44	24	4	5
Total	4,808	1,135	888	357	6,193	1,348	1,028	521

These figures are only estimated. Those for 1900 are as given out by the chamber of commerce, while those for 1901 I have compiled with the assistance of the above-mentioned body. No record can be kept of a very large number of firms, because they fail to report themselves to the chamber of commerce as either buyers or sellers, as the case may be.

THE VORMESSE OF 1901.

The quantity of goods sold at this year's Messe was perhaps no larger than it was either in 1899 or in 1900, in spite of the large increase in the attendance of buyers and sellers. There seemed to be a certain dullness in some branches, resulting from the uncertainty of the commercial and political outlook, which was very evident throughout the week. The export class was more numerous than usual, and the Messe's best customers—England and America, or their representatives—were on hand in full force. The number of French buyers was much larger than usual; some attribute this to the favorable impression which the German exhibits made at the Paris exposition last year.

The English merchants expressed themselves as being satisfied with the condition of their home market. They are very sanguine as to the outlook.

CERAMICS.

The great variety of exhibits in this, the most important, branch of industry at the Messe was even larger than last year. Many firms were represented for the first time. Along all lines there seemed to be the keenest kind of competition.

The exhibits of some of the Italian ceramic firms, especially those which are located at or near Milan, were much admired. Many of the burnt-clay and pottery productions were really works of art. It seemed to be the aim of majolica manufacturers—at least some of them—to produce novel designs, and, in their efforts to do so, quality and æsthetic taste were overlooked. The modern professional ceramic designers are apparently giving more attention to the quantity of the work they can turn out than to the quality.

In the porcelain line, the state factories of Meissen, Berlin, and Nymphenburg had really beautiful exhibits. In addition to many new models, some of those exquisite pieces which were seen last year at Paris were exhibited here. Especially worthy of notice were three small pieces of plastic work exhibited by the Meissen factory.

Bavaria as a china-manufacturing country has made great advancement. Some of its exhibits were most beautiful. In the tea and coffee sets, many novelties were to be observed. The ground

style of decoration seemed to be mostly wild flowers. The coloring was as a rule more delicate and modest than has characterized the work of many modern porcelain factories.

The exhibits of the German majolica manufacturers deserve to be mentioned. While not producing anything new, their goods have been much perfected.

In art pottery, an original hand-worked novelty called "Korina," which was exhibited for the first time, found much favor. Tubs and urns of this product were very effective. In the stoneware branch, modern faience vessels, with curved handles in the shape of flower stems, were also new.

The reliefs in terra cotta, with mahogany frames, for wall decorating, were another conspicuous novelty.

The business done in ceramics was good as far as staple articles were concerned, but for the fancy articles there seemed to be little demand. Real novelties in this line, however, met with a ready sale.

France, Austria, and Russia were the principal buyers of the most expensive kinds of porcelain. For the middle class of wares, in addition to those above mentioned, England and America bought freely.

The sales in stoneware were very satisfactory, the principal buyers being America, England, France, Sweden, Norway, Denmark, and Russia. In table porcelain of better quality, Sweden and Norway were fairly good buyers, but all other countries were quite reserved. Cheap services in bright colors were in demand. The largest business was done by firms who did not belong to the "china trust" or to the trade combination. One of these firms, which displayed a rich variety of modern decorated coffee services, recorded a large number of orders.

In the ceramic branch, the sales of many firms were disappointing, being less than usual. The volume of business transacted, however, was larger than at any previous Messe; but the increase in the number of sellers divided the orders into more parts than ever before.

During the week of the fair, several different meetings were held by those interested in the ceramic branch, the most important of which were as follows:

South German Retailers' Verein—for the purpose of establishing a current buying price. (The permanent headquarters of this organization is at Nuremberg.) The meeting of the stoneware manufacturers of Germany was secret and all that could be learned concerning it was that the general advance of 10 per cent in prices would be continued. The meeting of the wholesalers and retailers

of the German ceramic industry was confined to routine work. The Society of Porcelain Manufacturers of Central and West Germany also held a meeting.

GLASSWARE.

Like ceramics, glassware made a good showing at the Messe, and the volume of business done was fairly good, especially in the medium qualities. A greater variety of samples was exhibited than ever before. Glass buyers from America, England, France, Sweden, Denmark, Switzerland, Holland, and Russia were present. The German buyers were represented by wholesale dealers, agents of large department stores, and retail dealers, the latter coming principally from bathing and summer resorts.

In addition to the German and Austrian manufacturers, there were also several firms from France, Belgium, and Italy.

The fancies seemed to command the interest of most of the buyers. *Kunstglas* (fancy glass), the product of a Bavarian factory, attracted much attention on account of its beauty. These articles, the decorations of which were etchings designed by Herr Lambert, councilor of buildings at Stuttgart, are made of tiffany glass. The exhibits of a Silesian glass factory were worthy of notice.

In the cut-glass department, the sales in which were only passable, perhaps the best exhibit was made by a Belgian firm, which displayed some really beautiful pieces of work. Several German firms exhibited large and attractive varieties of samples of cut glass, some of which possessed great merit. The glass of one German firm seemed to be of heavier weight than that of the Belgian firm. Modern shapes were the most popular. Although American cut glass is considered to be second to none, not a single firm was represented at the Messe. Articles for everyday use met only with an ordinary sale. Many dealers were dissatisfied with the results. In the knick-knack department, a Thuringian firm exhibited as novelties quite a variety of fancy glasses in the venetian style. These goods, with a few exceptions, were slow sellers.

DOLLS AND TOYS.

The largest business was done, as usual, in this branch. The foreign buyers, especially from America and England and her colonies, placed large orders. Austria bought freely, mostly through German forwarding agents, who guaranteed the payment. South America bought little. Russia, Italy, Norway, Sweden, the Netherlands, Austria-Hungary, and France also made purchases. The Germans, as usual, were the smallest purchasers. The retailers from the seashore resorts, in anticipation of a good summer, purchased more liberally than before. The variety of these goods exhibited

was even larger than usual, especially so of dressed dolls. The manufacture of dressed dolls has made great strides forward in the last few years (as the large variety of samples would indicate), not only in the quantity manufactured, but in the quality as well. Great stress is laid on producing the best possible imitation of human beings; as an example, dolls with eyelashes of human hair. In dress, the latest fashions are followed, and not only are the dolls stylishly and elegantly attired, but have trousseaux, which range from a simple wardrobe contained in a basket to a luxurious one packed in a costly leather trunk. In dressed dolls, the demand was principally for a good medium quality. Original novelties were seldom seen. Deserving of mention was a very pretty group of dolls, representing a wedding procession; dolls with heads that could be turned, and faces which permitted changing of expression from laughing to crying; dolls with movable joints, the joints, however, not being held together by strips of rubber. The porcelain doll head is most in use, but the celluloid doll head is coming more and more into favor. There was some demand for undressed dolls, as well as for parts thereof.

The business in wooden, iron, and tin games, in which there were many pretty novelties, was very lively. Out-of-door games, such as ninepins, lawn tennis, gymnasium apparatus, etc., had a good sale. From a large field of novelties, the following are mentioned as receiving most attention: Mechanical hobbyhorse "favorite," which moves of itself; box of tin toys, "army camp and field hospital;" folding air ship, as wind kite, in quadrangular form; game "victoria," resembling chess, but very much easier (has the Transvaal war for its subject); rotary printing press "blitz," in miniature; footballs with vents, of German manufacture; German colonial game "kosmos," an interesting table game, the figures having a new style of locomotion; children's coasting road, consisting of a small four-wheeled wagon, which slowly descends a wooden railway on an inclined plane; children's writing desk, constructed so that it compels the child sitting therein to sit up straight; paper balloon, "Zeppelin air ship;" "the little roofer," a game for boys, on the plan of building bricks or blocks; "the child's mirror," an amusement for babies; indestructible tin soldiers; "red, white, and blue," a new table game; electrically operated cog-wheel railroad; game, "the capture of Peking;" universal pin-and-ball game "union;" "tosca," a new ball game; hollow building bricks, especially adapted for export; celluloid balls; table lawn-tennis game; field artillery, consisting of cannon, with attending soldiers, operated by an electric motor. I am informed that a Thuringian toy manufacturer recently received an order from New York to build a doll house to cost \$2,500.

HARDWARE, FANCY GOODS, MILLINERY, AND CHEAP JEWELRY.

Trade in these articles was passably good. To be sure, all were not satisfied with the results, but such a thing is hardly to be expected, considering the rich variety and quantity of goods offered for sale. A greater part of those who bought were foreigners. A number of Paris and Vienna houses made exhibits, as did three American firms. The buyers came from North America, England, France, Holland, Italy, Belgium, Sweden, Norway, Russia, and Austria-Hungary. The representatives of the Paris Louvre, Bon Marché, and other large stores purchased greater quantities than usual. The principal German buyers were wholesale dealers, department stores, and retail dealers from bathing resorts. Berlin bronze and zinc goods did not have as large a sale as usual, in spite of the fact that the samples shown were unusually fine. There was an especially large selection in 1 and 3 mark (23.8 cents and 71.4 cents) articles. Even at these low prices, articles were offered which would be very pretty as room ornaments, especially vases, dishes, candlesticks, etc., made of bronze combined with glass, majolica, or stone ware (imitation onyx, agate, etc.). The majority of these articles were made in the most modern styles. There were mistletoe branches, orchids, etc., with exactly the same tints as the living plants possess.

The business in nippes, or imitation bronze, was very satisfactory, Dresden being especially prominent in this line. Trade was moderately active in Vienna fancy articles. Paris fancy goods also enjoyed a fair sale. Novelties in this line consisted of ladies' necklaces, to be wound twice round the neck, closed with a buckle; chain belts, ladies' combs in the pompadour style, writing materials of bronze in the "secession style," in the form of a water sprite ascending from a wave; jester articles of rubber for inflating, with musical contrivance (as, for example, the running snake, clown, owl, etc.). The business in fans, cigar holders, and pipes was very quiet; that in Japanese and Chinese goods was more lively. Many sales of brooches of silver dollars (Mexican), inlaid with bright-colored enamel, were made; also ivory goods of one piece, such as letter openers inlaid with mother-of-pearl, visiting-card cases, etc.; imitation tortoise shell, transparent pictures, fans of silk with paste painting.

Leather goods had a fair sale. As novelties were offered goods of armadillo leather, leather goods with stamped patterns (portraits, flowers, etc.), caskets; "wonder purses," containing besides places for money, those for lead pencil, penholder, eraser, postage stamps, etc. Purses with colored fancy designs were in demand. Shopping bags did not have as large a sale as was expected.

The trade in postal-card, postage-stamp, and photograph albums was moderate. A pleasing novelty in postal-card albums was the new "Philatelisten album," in which the stamp and postmark on one side and the card itself on the other are visible. There were many new things in portfolios, such as enamel alligator, imitation "Flammleder," etc. Wood carvings had a good sale.

The business in canes was moderate. There was some demand for those of the natural wood, but at low prices. Some business was done in imitation and cheap jewelry. Two American firms from Providence, R. I., were represented. Trade in brushes and pencils was moderate. Some was done in horn goods and combs, as well as in hat pins.

There was a falling off in the sale of lamp shades. A very practical thing in this line is the adjustable lamp shade "Protector," which is made of fine silk, with brass frame, and can be fitted to any lamp. This article had a great sale.

A passably good business was done in Christmas-tree trimmings. The novelties consisted of the lion light holder, which permits the safe burning out of the candles and prevents the dripping of grease; angels of porcelain, almost as light in weight as those of wax; glass balls, ornamented with flowers and leaves. Pictures and photograph frames had a moderate sale.

The business in artificial flowers left much to be desired. Novelties in this line were frames for illustrated postal cards, decorated with moss and flowers, and bouquets of artificial flowers, with electric incandescent lights.

The business in celluloid articles was fairly good. The sale of box goods was fair, as well as imitation-leather fancy goods of stamped cardboard with metal trimmings. New things in this line were boxes of bonbonieres of wood, which attracted attention. Other novelties which may be mentioned were cigar boxes "Alles da" (holding fifty cigars), playing cards, a match box, and a cigar cutter.

MUSICAL INSTRUMENTS.

Considering the stagnation which has existed in the musical-instrument industry for some time, the sales, generally speaking, were much better than many expected, and some manufacturers did a very good business. Although the results were not as great as they were two or three years ago, they may be regarded as passable. A large part of the foreign buyers, Americans excepted, took considerable interest in the musical-instrument branch of trade, especially in the mechanical apparatuses. South American importers were the principal foreign buyers, and it seemed as if the trade with those countries in this line would be again revived. The English

buyers did not manifest as great a disposition to buy as usual. Buyers from other foreign countries were those from France, Holland, Sweden, and Russia.

In mechanical self-playing pianos, the Hupfeld instrument again attracted considerable attention by its expressive and rich, modulatory tone. The "pianola," an American piano-playing apparatus, excited some interest, it being a novelty—at least in Germany. Another self-playing apparatus is the "pneuma," which is run by electricity; it can also be operated by a crank. The advantages possessed by the "pneuma" are a fine touch and faultless repetition.

In the orchestrion branch, the "Euphonia" Company exhibited a novelty in which the instrument is provided with an indestructible zinc tune sheet and a brake for regulating the tempo. The music produced is very loud, a quality which is desirable in this class of instruments.

A novelty in the organ branch is the "æolian organ." This instrument can not only be played in the usual way, but also by means of paper music rolls, and has a very ingenious mechanism which makes it possible for the instrument to play pieces of any description in a musical and artistic manner.

In phonographs, there were almost no novelties exhibited. Phonographs with changeable cylinder mandrils, for large or small cylinders, may be mentioned.

There were some new things in slot machines. New and original is the purse "automaton," from which one may obtain a purse by dropping a certain coin in the slot. There was not as much interest taken in these instruments as formerly. A good business was done in mouth organs and accordions. The "celephon," an instrument resembling an accordion, was brought out as a novelty. It is played by means of a tune sheet and the operator does not require any knowledge of music. The Americans were good buyers of accordions only, while the English were much poorer than usual.

There was some business done in string instruments. A novelty worth mentioning is the violin with keys. This instrument has a contrivance with keys, which is fastened to the neck and can be easily removed. With the assistance of a specially arranged and very simple note system, one can learn to play this instrument in a short time. The music produced is agreeable, although it lacks the beautiful tone real violin playing produces. Trade in children's drums and horns was good.

METAL GOODS.

Business in this branch was more or less satisfactory. Inquiries were mostly for novelties. There were large sales in nickel-plated and bronzed cast iron. There were some beautiful flower stands of

iron and desk garnitures. Russia, England, and Sweden were good buyers. Embossed copper goods sales were rather small. A Bavarian firm exhibited vases, bowls, pots for palms, etc., ornamented partly with polished brass and partly with black or colored enamel figures, which produce a beautiful effect. Articles of fine smith work had a good sale. Pretty novelties, called "Mummaln," are candlesticks in the form of leaves and flowers. Large sales were effected in "automobil-metal," which was brought out last year. This metal is of a massive bronze composition, coated with a so-called standard hard lacquer, which is very durable. The wine coolers, with polished brass handles, were very pretty and smart looking.

The sales of finer household articles of silver, nickel, etc., although the samples exhibited were very fine and numerous, were small, and of no particular importance. Something new was a half-precious metal, a composition which in appearance resembles nickel. An American exhibitor introduced new alloys in silver plate. Articles of so-called "Kayser-Zinn," also of nickel-plated sheet iron, had a good sale. The sales in enameled-iron and sheet-iron ware were passably good. The business in steel goods was quiet. Novelties worth mentioning are "salta" knife, with appendage, and patent screwdrivers after the American system.

PAPER AND WRITING MATERIALS.

The paper exhibition was perhaps more extensive this year than it has ever been before. Although the number of buyers was large, it might have been larger had the attendance of foreign buyers been in proportion to what it has been heretofore. Some exhibitors booked large orders.

The machinery branch was represented by many firms, in some instances with novelties. Worthy of mention are cardboard cutting machines for rounding corners; book-stitching machines; automatic machines for carrying the sheets, with contrivance for allowing only one sheet at a time to pass; folding autographic hand press "Vollkommen;" multiplying machine "automatic cyclostyle;" lever cutting machine, with automatic press contrivance. As a novelty, wool paper without paste was introduced, it being odorless, elastic, and cheap.

The exhibits in picture postal cards were much larger than ever before, although the business was limited. Novelties worth mentioning are a series entitled "Die Woche" (the week), consisting of seven postal cards with humorous pictures, well executed; "Leipziger Allerlei," cards with humorous "sujets" and rhymes in the Saxon dialect. One firm offered baptismal cards, decorated with celluloid flowers.

BASKET GOODS.

The trade in this branch was very satisfactory. Sweden and Norway were especially large buyers. The manufacturers are hampered by a scarcity of Chinese straw, a circumstance that has caused the raw material to advance 50 per cent. Special novelties are cane furniture in modern style, fancy articles in wood shavings for flowerers and bonbonieres, boxes of fancy straw, with beautiful ornamentations.

WOODEN WARE.

A good business was done in small furniture, bric-a-brac, and furnishings, such as brackets, panels, salon stands, etc. Considerable interest was shown in articles of light wood for wall-decorating purposes. America, France, and Sweden were buyers of these articles.

HIDES AND SKINS.

The business in raw hides and skins was very quiet. The demand for hides of neat cattle was very limited, as has been the case for some time. There was nothing to indicate that there would be any change for the better in this condition of affairs.

Heavy red oxbides of medium weight were practically the only kind which had any sale; those of heavier weights, although offered in large quantities and at low prices, were very hard to sell. Some bull hides of a lighter weight were sold. Cowhides were salable at low prices. There was no demand for the heavier weights, and sales could only be effected by further reducing the prices.

TEXTILE GOODS.

This trade suffered from a great dearth of goods. The first day a good business was done, but on the third day sales almost ceased. Many factories are working on stock. The more important manufacturing places in this branch which were represented at the fair were Neudamm, Crimmitschau, Finsterwalde, Cottbus, Luckenwalde, Sagan, Werdau, and Forst. Generally speaking, the business done was very poor.

SUNDRIES.

There were several special novelties which should be mentioned: Bread box, oblong in form, with inside part; transportable petroleum heating stove, without pipe or chimney; "pommes frites," a potato and fruit slicer; an aluminum warming bottle; a universal kitchen table, with revolving mincing block, polishing contrivance, and cutting leaf (this novelty attracted considerable attention); a hygienic bread box, which closes tightly and keeps bread fresh, provided with a slicing contrivance which cuts the bread in slices of

uniform thickness, without its being necessary to touch the same with the hand (these qualities assure this bread box coming into general use); a patent candlestick, with movable candle socket, the latter remaining always in a vertical position; a patent dustpan "Ideal," with recess for holding the sweepings; a toilet-paper holder "Unico," from which the roll of paper can not be removed.

BRAINARD H. WARNER, Jr.,

LEIPZIG, *April 18, 1901.*

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Consul.

EXPOSITION OF HYGIENE, MARITIME SECURITY, AND FISHERY AT OSTENDE.

The Department has received a note from the Belgian legation, dated Washington, May 21, 1901, requesting the participation by the Government and the people of the United States in the international exposition of hygiene, maritime security, and fishery to be held at Ostende, Belgium, during August and September next.* An international congress will be organized in connection with the exposition, for the discussion of questions of maritime hygiene and maritime and colonial security.

The object of the exposition is to make known the measures adopted by different governments for the organization and working of services of succor on battlefields and in cases of great catastrophes on sea or land—as the use and working of life-saving apparatus, etc.

Demands for admission should be addressed, not later than August 1, to the committee of organization at 18 rue des Soeurs Blanches, Ostende, Belgium.

The price for sites will be as follows:

Isolated sites, 40 francs (\$7.72) per square meter (1.196 square yards); sites not isolated, 25 francs (\$4.83) per square meter—payable within fifteen days after receipt of the certificate of admission. Expenses of unpacking, installing, repacking, etc., will be charged to exhibitors. Articles exhibited may be sold, but not removed, before the close of the exposition.

The exposition will be divided into three divisions:

DIVISION I.—HYGIENE.

SECTION 1. *Applications of physical and natural science to the hygiene of seamen and of the inhabitants of the coast.*—Apparatus for the study of maritime phenomena; registers of tides, apparatus for collecting and transmitting tidal forces,

*A report on the same subject has been received from Minister Townsend, of Brussels.

for exploring the depths of the sea; means for putting beaches in order, for the maintenance of downs; instruments for studying the physical and chemical properties of water and of air; barometers, hydrometers, thermometers, electrometers, microscopes, etc.; collections referring to seacoast or marine flora, to maritime fauna, etc.; herbariums, plants, or animals, preserved or imitated; artificial anatomy, etc.

SEC. 2. *Applications of civil or maritime engineering.*—Plans and rough drafts of halls, slaughterhouses, fish markets, etc., for bathing resorts; management and improvement of ports; types of houses, villas, etc.; special materials for maritime buildings, glazes impervious to water, etc.; lavatories, public and private bath houses, water-closets, means of ventilation, heating, lighting; plans for furnishing maritime localities and boats with potable water; special pumps (Norton and others), distilling apparatus, aqueducts; distribution of water, artesian wells, etc.; removal and utilization of refuse—ashes, filth, night soil.

SEC. 3. *Application of medical science.*—Ambulances, marine hospitals; installations to prevent the introduction of contagious diseases by sea; hygiene of naval transports; disinfection of premises, of boats, of residue of every kind; destruction of parasites; special pharmacies, medicine cases, articles for dressing wounds; remedies for seasickness; natural and artificial mineral waters; artificial foods; peptones, meat powders, etc.

SEC. 4. *Applications of bromatology and the domestic arts.*—Food in general; apparatus for the preparation of food in houses and on board of vessels; ovens for baking bread and sea biscuit; special foods for children, nursing bottles, condensed and sterilized milk, lacteal flours; installations for the preparation of preserved foods by every process; refrigerating apparatus; installations or apparatus for the preparation and the preservation of alcoholic drinks, milk, wines, liqueurs, etc.; extracts, coffee, tea, mate, chocolate, etc.; processes and products for destroying injurious animals, etc.; dress for sailors and fishermen, hats, helmets, waterproof boots and shoes or those with insulating soles, fishing and hunting boots, waterproofs, etc.; gymnastics, shooting galleries, fencing, etc.; models of tents, shelters, bath houses, urinaries, etc.; luminous and glazed papers, bedding, and hangings.

SEC. 5. Publications relating to hygiene.

DIVISION II.—SECURITY.

SEC. 6. *Coast and maritime security.*—Lazar houses, Red Cross, light-house signals, luminous signals, sirens, equipment and dress for salvors, apparatus for salvage, cork jackets, life buoys, safety dress, fires, explosions, saving ports, transports for wounded and shipwrecked.

SEC. 7. *Colonial hygiene and security.*—Colonial food products, models of houses, means of transport, dismountable steamers; means of destruction of injurious animals; fabrics and clothing for colonists; charitable establishments, hospitals, intellectual and moral development of the colored races.

DIVISION III.—FISHERY.

SEC. 8. *Fishing and the physical, intellectual, or moral development of fishermen and sailors.*—Auxiliary sciences of fishing; collections of animals useful or injurious to fishers: alive, preserved, or artificial; destroyers of the products of fisheries; zoophytes: sponges and corals; asteroids (starfish), sea urchins; worms; arthropods, crustaceans: shrimps, lobsters, sea crayfish, etc.

EXHIBITION OF DECORATIVE ART AT TURIN.

The Department has received a note from the Italian ambassador, dated Washington, May 14, 1901, inclosing programme of an international exhibition of modern decorative art, to be held in the Valentine Park, Turin, from April to November, 1902. It is hoped that artists and manufacturers of the United States will take part.

The programme includes:

FIRST CLASS.—THE MODERN HOUSE AND ITS DECORATIVE ELEMENTS.

SECTION 1. The painted, figured, or ornamental decoration of rooms or their parts (oil or frescoed sketches of ceilings, friezes, panels, etc.).

SEC. 2. Plastic or figured decoration of rooms or their parts (ceilings, friezes, panels, etc., of all materials, stone, metal, terra cotta, plaster, sandstone, paste-board, natural or composite woods).

SEC. 3. Doors, windows, chimney-pieces, etc.

SEC. 4. Pottery (vases, artistic objects, bricks, floor tiles, artistic tiles, etc.).

SEC. 5. Glass (vases, artistic objects, stained-glass windows, painted glass).

SEC. 6. Mosaics (pavements, friezes, panels, etc.).

SEC. 7. Stuffs, carpets, tapestries, galloons, and braids (decorative tissues and stuffs of all kinds, artistic hangings).

SEC. 8. Lace, embroidery, table linen.

SEC. 9. Wall papers, etc.

SEC. 10. Leather and imitations (painted, stamped, and embossed).

SEC. 11. Artistic basket work.

SEC. 12. Metals (engraved, embossed, beaten, melted).

SEC. 13. Arms and their accessories.

SEC. 14. Warming apparatuses and their accessories (stoves, hot-air gratings, etc.; fire-dogs, shovels, tongs, guards, etc.).

SEC. 15. Lighting apparatuses.

SEC. 16. Furniture.

SEC. 17. Furnishing items (for the table, kitchen, toilet, etc.).

SEC. 18. Silver, jewelry, enamels.

SEC. 19. Medals, moneys, decorative plates, seals, plaquettes.

SEC. 20. Graphic arts (posters, sketches, ex libris, stamps, initials, headings, tailpieces, cards, tickets).

SEC. 21. Artistic prints, book illustrations.

SEC. 22. Art of bookbinding.

SECOND CLASS.—THE MODERN ROOM.

SEC. 23. Rooms or complete apartments (the whole of one or more rooms; floors, walls, ceilings, furniture, items, and accessories for the room or apartment).

THIRD CLASS.—THE HOUSE AND STREET.

SEC. 24. Plans of buildings and of their parts (distribution of rooms).

SEC. 25. Plans of streets, squares, gardens, bridges, porches, etc.

SEC. 26. Exterior decoration of the house and street (designs and models of railings, balustrades, posts, door knockers, door handles, fountains, sconces, lanterns; summerhouses of all kinds, benches, house fronts, etc.).

A summary of the regulations* is given below:

Only original productions which show a decided tendency to the esthetic renewal of the form will be admitted.

Neither simple imitations of past styles nor industrial productions not inspired by a sense of the artistic can be admitted.

No one will be allowed to exhibit objects except those of his own handiwork or manufacture. Exceptions will be made when an exhibitor, in order to complete his work, has necessarily to make use of materials which are not of his own production.

The exhibition will be administered by a general commission presided over by the Duke of Aosta; in the principal towns of the Kingdom and abroad, the general commission will nominate special committees.

Those who desire to take part in the exhibition are to send in to the general commission, either directly or through the respective committees or delegates, a duplicate request for admission, with the necessary descriptions.

Such requests must reach the general commission not later than July 31, 1901.

Exhibitors are exempted from payment of any tax for location. They will contribute a tax for individual inscription, fixed at 10 francs (\$1.93), which must be paid on the receipt of the letter of admission.

Exhibitors must provide for the transport of their goods both in coming and returning, as also for their consignment at the receiving office within the exhibition, for the opening of the cases, for the placing of the objects, for eventual repairs, and, at the close of the exhibition, for repacking, and for removal of the special stalls.

The general commission will employ measures for obtaining temporary importations free of duty, as also reductions of carriage by rail or sea, etc.

All goods must be directed to the general commission (via Ospedale No. 28, Turin), from March 1 to 31, 1902.

Those who intend to make use of the space that the general commission will place at their disposal must send in, not later than July 31, 1901, the description of the room or group of rooms they may require, with special attention to the position and dimensions of the various openings.

They must specify clearly whether they intend to provide only for the decoration of the room or for the furnishing of the same, or whether for both.

Prizes will be given: First, for the best plan of a modern house, villa, etc.; second, for the best suite, composed of at least three rooms destined for different uses, decorated as a whole; third, for the best economic suite composed as above, decorated as a whole; fourth, for the best elegant room; fifth, for the best room of an economic stamp.

CONGRESS OF PUBLISHERS IN GERMANY.

The fourth international publishers' congress will be held in Leipzig from June 10 to 13, 1901. The American Publishers' Copyright League, the American Publishers' Association, and the Music Publishers of the United States—all of New York City—and thirty-three publishers' associations in other countries have been invited to send delegates.

* The full text of which is filed for reference in the Department of State, where it may be consulted by interested parties.

The regulations governing the fourth international publishers' congress are as follows:

Music and art publishers, as well as publishers of illustrated papers, periodicals, and newspapers, will be admitted as members upon payment of \$5. German will be the official language of the congress, but reports and discussions may be carried on in either English, French, or German, the attendance of interpreters having been arranged for. All meetings will be held in the "Deutsche Buchhändlerhaus," Leipzig. Only questions of international interest, or such as bear directly upon book and music publishing or copyrights, will be discussed.

In order to accomplish as much work as possible, the congress will be divided into three sections, as follows: (a) Authors' and publishers' rights; (b) the book trade; and (c) the music trade.

Among the accepted reports are: "Copyright relations between the United States of America and European states," by Dr. Karl Trübner, Strassburg; "The need of a better protection of the copyrights upon educational works," by Mr. D. C. Heath, Boston; "Extension of copyright protection," by Herr Fritz Schwartz, Munich; "Duty charged on books and its relation to new commercial treaties," by Dr. Alfred Giesecke, Leipzig; "The sale-or-return system," by Mr. William Heinemann, London; "The relations between authors and publishers on the one part and the daily press on the other, with regard to reviews," by Mr. Paul Ollendorf, Paris; "Special libraries of the book trade and allied industries and their international intercourse," by Herr Otto Harrassowitz, Leipzig; "Publishers' interests and the published price," by Herr Dr. Wilhelm Ruprecht, Göttingen; "The territorial subdivision of copyright property," by Mr. Henry R. Clayton, London; "The published price and discount in the music trade," by Mr. Henri Hinrichsen, Leipzig; "The appropriation of copyright music by the manufacturers of mechanical instruments such as the æolian," by Mr. Arthur Boosey, London; "International understanding between music dealers," by Herr Hofrat Dr. Oskar von Hase, Leipzig; "Piracies of copyright music," by Mr. David Day, London.

BRAINARD H. WARNER, Jr.,

LEIPZIG, *April 29, 1901.*

Consul.

OZOCERITE, OR MINERAL WAX, IN AUSTRIA.

Ozocerite, or mineral wax, is a resinous substance in many respects resembling beeswax. It is found in Austria-Hungary, Russia, Roumania, Egypt, Algeria, Canada, and Mexico, usually in connection with rock salt and coal; but, so far, it has not been discovered anywhere in sufficient quantities to pay for the mining, except in the district of Boryslaw, in the Austrian province of Galicia, and to a limited extent at Tchelekan, an island on the west coast of the Caspian Sea.

MINES AT BORYSLAW.

The existence of mineral wax in the petroleum district of Boryslaw was known about a century ago, but for more than fifty years it was turned to no account. In 1854, one R. Doms, a merchant of Lemberg, opened a mine with a view to utilizing ozocerite for

illuminating purposes. He also invented a lamp adapted to the employment of this combustible and had it patented. The successful working of his mine attracted the attention of a large number of speculators, who proceeded to buy from the poor peasants small tracts of land known to contain deposits of the coveted material, and to sink shafts upon their holdings, until in 1865 there were around Boryslaw, on an area of only 63 square miles, no less than 11,000 ozocerite pits, varying in depth from 25 to 170 feet. Want of working surface and bad management in time compelled by far the larger number of mine owners to discontinue operations, and those who have not been weeded out under the operation of the inexorable law of the survival of the fittest now seem to do a moderately lucrative business. An attempt has recently been made to form an ozocerite trust, uniting under one ownership or management all the existing mines and mineral leases of lands known or supposed to contain deposits of fossil wax; but, owing to the obstinacy of the owners of some smaller tracts, the promoters of the would-be trust are still kept busy trying to reconcile conflicting interests.

HOW OZOCERITE IS MINED.

Mining operations are commenced by sinking a shaft and connecting it by galleries with the beds, or "nests," containing the wax.

Sometimes it happens, when a nest is being opened, that the enormous pressure of the gases shut up in the same causes the soft mass of wax to be forced out with great vehemence. Such occurrences greatly imperil the lives of the miners, who are compelled to flee to some higher part of the shaft for safety. In some cases, the pressure is so powerful that even the deepest shafts are filled with wax up to the surface. Previous to 1884, the average yearly deaths from such accidents were 9 per 1,000. In recent years, however, measures have been taken by the Government to protect the miners' lives.

An official investigation made in 1898 showed that during the previous year the ozocerite beds of Galicia covered an area of 956,885 square meters (1,142,898 square yards), and that there were 42 different mining concerns, employing 5,413 operatives. The output in that year was 77,586 quintals (17,068,920 pounds).

THE CLEANING PROCESS.

Mineral wax is never found in a pure state, and such of the crude material as is intended for export is usually freed from foreign matter (earth, small stones, etc.) near the mines. It is for this purpose put into tanks, which are heated either by a direct fire or by steam. In the former case, the furnace must be so arranged

that the flames strike the sides as well as the bottom of the tank, for otherwise the wax would overheat, and this would cause partial distillation to take place.

At all the larger works, steam is now used for this process. In the beginning, the steam must have the degree of heat necessary to melt the wax. Subsequently, only sufficient heat need be maintained to keep the mass in a liquid state. This is continued until all earthy and other foreign matter has settled to the bottom. The wax is then decanted into iron congealing vessels, having the form of a truncated cone. These vessels are whitewashed on the inside to prevent the adhesion of the congealed blocks of wax. The blocks obtained are generally from 15 to 25 inches high, have a diameter of from 30 to 36 inches, and weigh from 650 to 850 pounds.

THE MELTING POINT OF OZOCERITE.

The melting point of ozocerite is from 136° up to 212° F. Blocks of the latter high degree of fusibility, however, are seldom found. The average melting point of the better qualities is from 140° to 158° . If the wax is fusible at a lower temperature than 136° , one may take it for granted that it has been adulterated with other substances.

ANALYSIS OF OZOCERITE.

The following is the analysis of one of the better qualities of unadulterated Boryslaw ozocerite:

	Per cent.
Water.....	0. 33
Naphtha	5. 67
Petroleum.....	3. 67
Crystallizable paraffin.....	82. 33
Other substances, residue, and loss.....	8
Total	100

THE MANUFACTURE OF CERESIN.

By far the larger portion of the raw ozocerite consumed in Austria is manufactured into ceresin. There are in this country about twenty refineries, and it is doubtful if the processes employed by any two of them are identical. In most of the refining works, the wax is mixed with from 6 to 10 per cent of sulphuric acid, heated and filtered through bone, charcoal, or spodium. This gives it a light-yellow color. It is then again treated with sulphuric acid, and finally with caustic soda, until every particle of the acid is eliminated. Fairly successful experiments have also been made to avoid the use of sulphuric acid and substitute benzole, in which case the dissolvent must be eliminated by distillation.

In the filtering process referred to, coal of the size of small grain is placed between two sieves, which are inserted in each filter. A number of filters are placed together in a frame and sufficiently heated by direct steam to keep the wax in a liquid state. Whenever the coal has lost its efficacy as a blanching agent, it can, by proper treatment, be resuscitated, or rendered again fit for use.

After the mass has been sufficiently blanched, it is decanted into funnels provided with paper filters and having also a contrivance for being heated during the filtering process.

SHOEMAKER'S WAX AND PARAFFIN.

I understand that a not inconsiderable quantity of ozocerite is also consumed in Austria in the manufacture of shoemaker's wax and paraffin, one being the by-product of the other. This industry, however, appears to be entirely confined to Vienna.

USES OF CERESIN.

It is almost impossible to enumerate the many and constantly increasing uses of ceresin. It is mixed with beeswax in the manufacture of wax candles, for it not only increases the fusibility of the beeswax, but also renders the candles much whiter. It is also employed in the manufacture of phonographic cylinders, in modeling, in galvano-plastic printing, and in other arts. The residues are worked up in the manufacture of telegraphic cable wax, shoe polish, and the like.

EXPORTS OF CRUDE OZOCERITE.

In the year 1899—no later figures are available—there were exported from Austria 54,413 quintals (11,970,860 pounds) of ozocerite, valued at 2,149,000 florins (\$872,494), of which 68 $\frac{2}{3}$ per cent, or 37,367 quintals (8,220,740 pounds), went to Germany.

The remainder was sent to France, Great Britain, and other countries. The quantity exported to the United States was 23,368 pounds in 1898 and 22,220 pounds in 1899.

The following table gives the quantities and values of crude ozocerite exported during the five years preceding 1899:

Year.	Quantity.		Value.	
	Quintals.	Pounds.	Florins.*	
1894.....	51,684	11,387,830	1,433,678	\$582,073
1895.....	50,539	11,141,828	1,493,942	606,540
1896.....	57,215	12,613,619	1,916,703	778,172
1897.....	51,595	11,359,201	1,906,425	774,908
1898.....	44,621	9,816,620	1,740,219	706,429

* 1 florin=40.06 cents.

EXPORTS OF REFINED OZOCERITE.

There were exported from Austria, in 1899, 11,210 quintals (2,466,200 pounds) of refined ozocerite, valued at 588,500 florins (\$238,931). For several years the exports of the refined product have been decreasing, as the following table will show:

Year.	Quantity.		Value.	
	Quintals.	Pounds.	Florins.	Dollars.
1894.....	36,136	7,949,720	1,586,086	\$643,951
1895.....	23,822	5,240,840	1,026,921	416,929
1896.....	23,552	5,181,440	1,059,540	430,295
1897.....	13,395	2,927,100	545,505	221,475
1898.....	14,224	3,149,280	611,632	248,322
1899.....	11,210	2,466,200	588,500	238,931

While, as has already been indicated, statistical data are not available for 1900, I gather from the statements of local dealers and refiners that last year's total exports did not materially differ in quantity from those of 1899.

The shipments to the United States are insignificant, never having exceeded in value \$5,000 in any one year.

FREDK. W. HOSSFELD,

TRIESTE, *May 3, 1901.*

Consul.

DEPRESSION IN AUSTRIAN TEXTILE INDUSTRIES.

The stagnation in the various branches of the textile industry, which has existed in Austria and Germany for the greater part of a year, still prevails, and instead of the hoped-for improvement this spring, the situation is becoming even more grave.

The cotton-goods industry is perhaps the most seriously affected. The union of manufacturers of these wares in Austria, whose factories contain nearly 100,000 looms, has decided to reduce the output 20 per cent after July 1.

Though unfavorable markets and the unstable price of cotton are charged with the general responsibility for the present situation, there is in Austria another contributing cause. For several years just prior to the past twelve months, the cotton-goods business was so active that the erection of new factories was stimulated. This caused the operation of about 10,000 additional looms in Austria. Soon following came a depression in prices, which was aggravated by competition until the selling price hardly covered the cost of production.

However, the cotton spinners were in the meantime reaping a bountiful harvest from the increased orders for yarn. Their condition is still far better than that of the weavers, though not satisfactory. No improvement is expected till production fits market demands, but the contractions necessary to produce that condition will certainly prove fatal to many firms.

Manufacturers of woolen goods are suffering less, but spinners of yarn have been heavy losers from the unstable price of the raw material.

All branches of the Austrian linen industry are ruled by intense caution and restraint, but, even with reduced production, there is a surplus. North America, the best market for Austrian linens, is buying almost nothing. Sales to South America are interrupted by commercial crises there. English markets are stagnant, and the domestic trade has rarely been so small.

The linen industry is also suffering from the high price of the raw material. In Russia, which is the chief source of the flax supply for central Europe, the crop of 1900 was even smaller in quantity and worse in quality than that of 1899—a specially bad year. Linen yarn has advanced 20 per cent in price and further advances are in prospect, but the spinner has not yet recouped his increased outlay caused by the enhanced cost of flax.

FRANK W. MAHIN,

REICHENBERG, *April 19, 1901.*

Consul.

CANAL PROJECT IN AUSTRIA.

A former report from this consulate* concerned a project to construct a canal joining the Oder and Danube rivers, with a prolongation from the latter stream to the Adriatic Sea, near Fiume, Hungary. This was a distinctively Hungarian project, but it has evidently suggested a canal scheme upon a vast scale, which is now under consideration before a committee of the Austrian House of Representatives.

The Austrian proposition contemplates a canal from the projected Oder-Danube water way eastward to the Dniester River, which flows into the Black Sea, and another westward to the Elbe. Still another will join the Danube and Moldau rivers. The completion of these would mean a network of canals covering the principal provinces of Austria, which would afford cheap all-water routes to the Adriatic, the Black, and the Baltic seas, besides linking the navigable streams of the Empire. In addition to all this, the Chamber of Commerce of Trieste, Austria's seaport, asks for an amendment to

* ADVANCE SHEETS No. 1029 (May 6, 1901).

the canal bill providing for a water connection between that city and the Danube, thus making two outlets to the Adriatic, if the amendment be accepted.

When this measure was first proposed, not a word of objection was heard. Indeed, it was received with fairly enthusiastic acclaim. The Government fathered the project, and announced that the vast sum of 750,000,000 crowns (about \$150,000,000) would be appropriated for it—each of the interested provinces of course bearing a share of the financial burden. Suddenly, a note of discord came from an agrarian organization, which expressed the fear that by cheapening freight rates the canals would flood Austria with foreign food products, especially grain and vegetables. This note was caught up all over the land, and the changes were rung on it in the agrarian districts. The opposition is now settling down to a demand that before the canal project is decided upon, the various rivers shall be improved by straightening their curves and walling their banks. The Government assents to this, at least so far as to propose an appropriation of 75,000,000 crowns (about \$15,000,000) for such improvement.

Another body of objectors—a mixed class—contends that some parts of the canal enterprise are impracticable and would be unprofitable, and demands their elimination and the retention of only the manifestly feasible and profitable parts. This proposition, however, is essentially as fatal as the agrarian demand for rejection in toto. To stand, the scheme must apparently remain intact, for if divided it would probably lose the support of provinces necessary to its success.

On the other hand, the project in its entirety is supported with great ardor by manufacturing and commercial interests generally. The chamber of commerce in this city took the initiative with a strong resolution, and various other industrial bodies in Austria have adopted expressions of warm approval.

The fate of the bill is uncertain, but at the present moment there is some indication that the committee of Parliament having it in charge will make a favorable report.

FRANK W. MAHIN,
Consul.

REICHENBERG, *May 20, 1901.*

AUSTRIAN PROTECTION OF HOME INDUSTRIES.

A German trade journal, speaking of the methods employed by the Austrian Government to protect home industries, says that it threatened to withdraw the subsidy granted to a hat factory at Temesvar because the latter had ordered an electric-lighting plant from a German firm, and was only prevented from carrying out its threat on being convinced that there was no firm in Austria which

could have carried out the contract as required. Similarly, a match factory at Raab was reproved by the Government for purchasing foreign material. The electric tramway companies of Fiume and Temesvar were fined for purchasing their motors from a German firm. The electric mining road of Derna was only given permission by the Government to purchase locomotives, dynamos, etc., from a German firm after the managers had proved conclusively that, for their special purposes, they could use only the machines of this firm.

Furthermore, it is stated, the Austrian Government keeps a register of all Austrian firms which purchase foreign goods or raw materials, and to such firms the Government never grants the least favors, nor do they ever receive Government contracts.

WALTER SCHUMANN,

MAINZ, May 11, 1901.

Consul.

AUSTRO-HUNGARIAN COMMERCIAL EXPEDITION.*

Austria is making every effort to increase her export trade, and to this end many radical measures have been considered and several put into execution. An export academy has been established; commissions and delegations have been sent abroad to study commercial conditions in other countries; in the Austro-Hungarian consular service, many honorary consuls have been replaced by trained and salaried ones, and the plan of an exposition of Austrian manufactures is now being successfully carried out at the capital of Denmark. One of the most important means considered was a great floating exhibition, which, going from port to port, would introduce Austro-Hungarian exportable goods in suitable markets all over the world. The Government voted 300,000 florins (\$120,000) for the undertaking, which, however, was given up, owing to a change of ministries. Following this tentative movement, a private expedition was fitted out on a small scale and achieved satisfactory results. Now, again under unofficial auspices, an "Austro-Hungarian commercial expedition to eastern Asia" is about to be taken around the world. This expedition has been very carefully organized, and is under the leadership of an Austrian merchant who has resided many years in the Orient. The expedition receives no governmental

* In 1882, Consul Tanner, then at Liege, reported upon a "floating commercial exhibition" then being inaugurated in England (see CONSULAR REPORTS No. 19, for May, 1882). Consul Atwell, of Roubaix, also reported at length upon a "floating exposition" which was to leave Trieste in December, 1898, for the Far East (see CONSULAR REPORTS No. 218, for November, 1898). The prospectus of that Austrian floating exposition covered about the same ground as that given in the present report of Consul Hurst. No further reference to those two "floating expositions" has been made by any of our consuls. The idea of such floating expositions was not original with either the English or the Austrians, for Consul Atwell remarks in his report that "a similar expedition was undertaken by Switzerland in 1860."

or other subsidy and is undertaken on a business basis, calculated to render the enterprise a financial success. This is the second venture of the kind made under the same management, and, as the first was profitable, this expedition, improved in equipment and traveling further afield, bids fair to bring in substantial material returns for the participants, and to open for Austria-Hungary markets where this country is now unrepresented, as well as to introduce goods into lands where Austro-Hungarian agencies may already exist, but where other countries have a monopoly. Italy has within a few years tried this scheme to her advantage, and the Italian Trading Company, organized to exploit Italian products, is now a vigorous and paying body. It started with some one hundred and twenty-two manufacturing members, and it now has enrolled over five hundred. Germany sent out to the Far East in 1898 a commercial expedition, which was absent over a year, with gratifying results. The favorable impression of these undertakings on exporters in Italy and in Germany has influenced a certain class of business men in Austria-Hungary, and the fitting out, progress, and ends attained by the expeditions are road marks to countries which seek to find wider markets for their manufactures.

Austro-Hungarian exporters who desire to participate in the expedition now in question may send samples occupying a space of 1 cubic meter (35.3 cubic feet), or having a weight of 1 ton, according to the nature of the merchandise, at a cost of 1,000 crowns (\$200), and for each further like quantity at 500 crowns (\$100). Outside of a commission for orders, reaching the exhibiting manufacturer directly or indirectly, there will be nothing further to pay. Samples of value will be sold after use, and the net proceeds accounted for to the exporter. The expedition will start early in June, stopping on its way in New York and in San Francisco, and make exhibits at the following places: In Japan, at Yokohama, Kobé, and Nagasaki; in China, at Tientsin, Shanghai, Canton, and Hongkong; in Siam, at Bangkok; in the Straits Settlements, at Singapore and Penang; in Sumatra, at Medan-Deli, Palembang, Padang, and Kota-Radja; in Burma, at Rangoon; in India, at Calcutta, Madras, and Colombo; and, further on, at Aden, Suez, and Port Said.

The expedition will aim to carry samples of Austro-Hungarian manufactures, to exhibit them in suitable places and to take orders; to collect samples and price lists of salable articles abroad and submit them to manufacturers in Austria-Hungary interested in such articles; to extend the relations with transoceanic firms begun during the first Austro-Hungarian expedition in 1899-1900, and possibly to start its own commercial establishments.

Among the direct advantages that this commercial expedition

offers are the assurance that the samples of Austro-Hungarian manufactures will be energetically exploited in the proper markets, and the certainty that the orders taken on the basis of the exhibited samples will reach the manufacturer concerned, and that cash payment will be made upon presentation of bill of lading by some bank in Europe, to be designated at the time. Detailed reports will be made on the condition of foreign markets, their demands and tastes, together with suggestions as to Austro-Hungarian goods likely to sell there, their qualities, designs, make-up, and packing, as well as prices and terms.

CARL BAILEY HURST,
Consul-General.

VIENNA, May 17, 1901.

SUGAR INDUSTRY IN EUROPE.

In the beginning of the year 1900, there was a general fear on the part of the sugar dealers in Austria-Hungary of an overproduction, but this proved unfounded on account of an unexpected failure of the crop in nearly all the colonies. The sugar trade is generally able to estimate very closely the amount of raw sugar produced in Europe, but the colonies are an uncertain quantity, and nearly every year furnish a surprise. The general calculations of the trade have been that the sugar crop in the colonies would increase from year to year; but in the place of this increase, there has been yearly a decrease. It is said that the United States imported in 1900 only 1,558,266 tons of sugar, against 2,219,847 tons in 1899, although the consumption of sugar in the United States rose from 2,078,068 tons in 1899 to 2,219,847 tons in 1900; and the whole stock at the end of last year amounted to only 69,000 tons as against 208,472 tons in the previous year. This shows that our production of sugar is increasing gradually, and indeed the syndicates who manipulate the market in Europe believe that the time is not very far off when the United States will produce all the sugar it needs, and they are seeking other markets and considering the possibility of a greater consumption of sugar by the different nations. Statistics for the year 1900 show that Russia consumed about 20,000 tons more than in 1899; Germany, 91,243 tons more; France, 29,250 tons more; and England, 46,100 tons more; while Austria-Hungary, it is claimed on account of the increase in the consumption tax, consumed 27,692 tons less in 1900 than in 1899.

The statistics further show that Spain, Italy, and the Balkan States have not only produced all the sugar needed for their home markets, but that they have also begun to export to a small extent; that Egypt, which up to a few years ago used to import annually

50,000 tons from Austria, is now exporting large quantities to the United States and India, so that the best outlets for sugar are those in the Far East.

The export of sugar from Austria-Hungary to East India and Japan in 1900 showed an increase over the previous years; but Japan passed a law, which went into effect on April 1 of this year, providing for a consumption tax, which will reduce the demand for sugar and eventually lead to the establishment of sugar refineries there.

The only consolation, it appears, that Austrian dealers in sugar have is that there is no prospect of abolishing the export premiums paid by Germany, Austria, and France. Austria is opposed to the abolition of this tax, because France is its main competitor, especially in refined sugar in England.

It is surprising that the United States, with its millions of acres of virgin soil and with its improved machinery, has as yet such a comparatively small acreage planted in sugar beets and so few sugar factories.

HUGO DONZELMANN,

PRAGUE, *May 3, 1901.*

Consul.

GERMAN WOOLEN INDUSTRY.

There is probably no German enterprise which has undergone within a comparatively short time such a marked change as the woolen-dress-goods industry of this and neighboring districts. Until 1900, prosperous conditions prevailed, but early in that year there was a falling off in the values of wool and woolen yarns of from 50 to 60 per cent. Enormous financial sacrifices followed. The high tariff of Russia and the establishment of factories on a large scale at Lodz and other places in that country, the loss of the valuable United States market, and the decrease in exports to Austria, England, and Scandinavia are among the causes of depression. Last year, two-thirds of the looms were idle, nor is there any prospect of improvement. Of the many manufacturers previously engaged in the dress-goods trade with our country, only seven or eight are still left, and these ship less each season.

Some of the prominent manufacturers of this and other German cities have established branch factories in Passaic and Philadelphia, and, it is said, with great success. I am convinced that more would follow, if in possession of the necessary capital. Many communications have been received by this office from real-estate agents, railroad companies, and private persons in all parts of the United States, wishing to sell property for woolen mills; but, while I may

claim the merit of having been the mediator in the partial transplantation of one of the largest Gera factories to our shores, my further endeavors were, on account of the lack of capital, in vain.

In my opinion, this is an excellent opportunity for some of our large capitalists to combine with intelligent and reliable European manufacturers in the promotion of home industry. That such an undertaking will prove a first-class investment is shown by existing establishments.

CHARLES NEUER,
Consular Agent.

GERA, May 1, 1901.

MOND FUEL GAS IN GREAT BRITAIN.

British commercial and scientific circles are much interested in a discovery made by Dr. Ludwig Mond, of the great chemical firm of Brunner, Mond & Co., Limited, whose headquarters are at Northwich, Cheshire, this consular district. This discovery is a gas for furnaces and gas engines, which, it is claimed, can be supplied to consumers at a maximum price of 2d. (4 cents) per 1,000 cubic feet. Public attention has been drawn to this discovery by the recent application of a number of leading manufacturers in the South Staffordshire district for a bill in Parliament to give the necessary legal authority to erect plants, construct mains, etc., to supply an area of 135 square miles. The bill has been read twice in the House of Commons and has passed through the committee stage successfully, so that the scheme will, in all probability, be in actual operation within the next few years. Five generating stations are to be established, and from these the gas will be conveyed, under pressure in underground pipes, to the various manufacturers in the district for use in furnaces and gas engines, but not for illumination. Mond gas is a "producer gas," made from the cheapest class of small coal and dust, commonly called "bituminous slack." Dr. Mond discovered a process by which this cheap slack can be converted into a clean gaseous fuel in such a way that a very large proportion of the nitrogen of the coal is recovered (as ammonia) and converted into sulphate of ammonia, which is a very valuable manure and fertilizer. The distinguishing features of the Mond process are:

- (1) The utilization of cheap bituminous slack.
- (2) The recovery of 90 pounds of sulphate of ammonia (value at present, \$1.94) for every ton of slack gasified.
- (3) Low temperature working, so that no clinkers are formed in the producer, and the ammonia is not destroyed.
- (4) Very perfect regeneration of heat by an ingeniously designed system, using water as a heat carrier.

(5) The production of a clean gas of extremely uniform quality, free from tar and grit, and of a higher calorific value than most other producer gases.

Mond gas is not a lighting gas; it burns with a pale-blue flame and has a much lower heating value than illuminating gas. It is a gaseous fuel, adapted for wholesale use as a heating and power agent, and the gas engines at Winnington, Cheshire, using Mond gas, hold the world's record for economy and for long and continuous runs. An experimental open-hearth steel furnace has been worked with excellent results, using Mond gas, and the gas is in daily use for glass melting, ore roasting, many kinds of furnace work, evaporating liquids, heating buildings, etc.

The following technical description of the Mond gas is taken from a paper read by Mr. H. A. Humphrey, M. I. Mech. E., a distinguished expert, at the Institution of Mechanical Engineers in London last winter:

The possibility of using cheap fuel and of recovering its ammonia has been the subject of Dr. Mond's experimental work on gas producers, which was started in 1879 and has been carried out on a large scale for a number of years at Winnington, Cheshire. This work resulted in the solution of the difficult problem of converting the cheap forms of fuel into a good gas of uniform quality in such a way that the ammonia existing in the fuel is not destroyed, but recovered as a by-product. Common bituminous slack, brought by railway wagons into the works, is mechanically handled by elevators and creepers and deposited in hoppers above the producers. From these, it is fed in charges of 8 to 10 cwt. at a time into the producer "bell," where the first heating of the slack takes place, and the products of distillation pass downward into the hot zone of fuel before joining the bulk of the gas leaving the producer. The hot zone destroys the tar and converts it into a fixed gas, and also prepares the slack for its descent into the body of the producer, where it is acted upon by an air blast, which has been saturated with steam at 85° C. (185° F.), and superheated before coming into contact with the fuel. Unlike what is done in other producers, the quantity of steam introduced into the blast is relatively large, and amounts to 2½ tons for every ton of fuel gasified. This large quantity of steam keeps down the working temperature of the producer within such limits as to prevent the formation of clinkers or the destruction of the ammonia, yet permits the fuel to be so thoroughly burned that good ashes are obtained. Half a ton of steam is decomposed in the producer for every ton of fuel burned, yielding thereby free hydrogen to the extent of 29 per cent by volume in the final gas. The hot gas and undecomposed steam leaving the producer pass first through a tubular regenerator in the opposite direction to the incoming blast. An exchange of heat takes place, and the blast is still further heated by passing down the annular space between the two shells of the producer on its way to the fire grate; then the hot products from the producer are further passed through a "washer," which is a large, rectangular, wrought-iron chamber with side lutes; and here they meet a water spray thrown up by revolving dashers, which have blades skimming up the surface of the water contained in the washer. The intimate contact thus secured causes the steam and gas to be cooled down to about 90° C. (194° F.), and by the formation of more steam, tending to saturate the gas with water vapor at this temperature, the bulk of the sensible heat is converted into latent; then passing upward through a lead-lined tower, filled with tile to present a large surface, the

producer gas meets a downward flow of acid liquor, circulated by pumps, containing sulphate of ammonia with about 4 per cent excess of free sulphuric acid.

Combination of the ammonia of the gas with the free acid takes place, giving still more sulphate of ammonia, so that to make the process continuous, some sulphate liquor is constantly withdrawn from circulation and evaporated to yield solid sulphate of ammonia, and some free acid is constantly added to the liquor circulating through the tower. The gas, being now freed of its ammonia, is conducted into a gas-cooling tower, where it meets a downward flow of cold water, thus further cooling and cleaning it before it passes to the various furnaces and gas engines in which it is used. The cooling of the gas with its burden of steam results in the condensation of the steam and in raising the temperature of the cooling water, so that the latter leaves the bottom of the tower as hot water, which is utilized in a third tower, called the "air-heating tower," through which the air blast from the blower is directed. Here, the contact of hot water and cold air gives cold water and hot air, saturated with water vapor at 73° C. (163° F.). By this method of utilizing the heat of the gas from the producer, nearly 1 ton of steam is added to the producer blast for every ton of fuel gasified; and this cyclical exchange of heat is always going on, and forms one of the distinctive features in the economy of the process. The hot water from the gas-cooling tower is circulated through the air-heating tower, and being thereby cooled is again pumped up to the top of the gas-cooling tower. Both towers are filled with tiles, to give large surfaces of contact, and the circulating water acts as the heat-carrying agent between the hot gas and the cold air. The charging of the fresh fuel into the top of the producer and the withdrawing of ashes from the bottom in no way interfere with the continuous steady work of the producer. Also, the large volume of steam employed acts as a most perfect regulator in keeping the quality of the gas uniform. Each Mond producer of the ordinary size used at Winnington is capable of gasifying 20 to 24 tons of slack per day of twenty-four hours, and the volume of gas furnished from 1 ton of fuel fed into the producer varies from 140,000 to 160,000 cubic feet, according to the quality of the slack, and is sufficient to develop 2,000 indicated horsepower hours when utilized in a gas engine. The value of the sulphate of ammonia recovered from 1 ton of fuel is, at present prices, 8s. (\$1.94), naked at the works.

JAMES BOYLE,

LIVERPOOL, *May 21, 1901.*

Consul.

BELGIAN COAL MARKET.

An interesting article relative to the Belgian coal market recently appeared in *Le National*, of this city. It refers to the condition of the coal industry in this country as being disturbed, and mentions that the Belgian railroad administration has not yet made its final decision relative to the last contract to be awarded for fuel. If English coal is accepted, a lot of Belgian coal, menus-maire (small unflammable), submitted at 10.90 francs (\$2.10), will be accepted to mix with the English coal, as well as a few lots of gras (soft free burning), submitted at a price under the average. As prices are mainly determined by the result of the Government contracts, manufacturers are dissatisfied with the present rates, and complain that prices are still from 1 to 2 francs (19.3 to 38.6 cents) too high.

The coal people declare that they have made all concessions possible, and that sooner than extract at a loss they prefer to shut down, following the example set by the rolling mills and steel works. Up to the present, however, the mine owners have not extracted at a loss, except, perhaps, the coke syndicate.

Latest quotations give:

	Francs.
Fines-maigres (small unflammable) coal.	12 = \$2.316
Fine one-fourth grasses (small one-fourth inflammable).....	14 = 2.702
Fines demi-grasses (small one-half inflammable).....	15 = 2.895
Furnace coal.....	17 = 3.281

Sales are slow, and mill owners prefer to make provision only from day to day.

BRUSSELS, *May 30, 1901.*

GEO. W. ROOSEVELT,
Consul.

WORKING OF THE BRITISH COAL-EXPORT TAX.

The tax recently imposed by the British Government on coal and coke exported from the United Kingdom has naturally given rise to many theories as to its ultimate effect upon the coal-producing industry in this district, and I submit the following pertinent observations and statistics as of possible interest to those engaged in the coal trade of the United States.

The attached table shows the quantity of coal and coke exported via the River Tyne (including coal for ship's use) during the year 1900. It is said that the coal produced in the United Kingdom in 1900 was 225,170,163 tons, of which 42,616,482 tons were exported.

A Parliamentary return, just issued, states that since 1886 the average rate of weekly wages of persons employed in the coal mines of Great Britain has risen from 21s. 1d. (\$5) to 33s. 11d. (\$8.25), and the value at the pit's mouth of the coal produced has increased from £38,146,000 (\$185,637,509) to £121,648,000 (\$591,999,900). The average value per ton has risen from 4s. 10d. (\$1.17) to 10s. 9d. (\$2.61), and the computed amount remaining for expenses other than wages and for coal owner's profits, from £11,750,000 (\$53,896,487) to £57,216,000 (\$277,390,500).

In 1900, the counties of Northumberland and Durham produced 46,315,240 tons and exported 13,943,111 tons. The capital invested in these two counties was £23,000,000 (\$111,929,500), and the number of men employed 152,563.

At the present time, notwithstanding the tax, best Northumbrian steam coals are 13s. (\$3.17) per ton f. o. b., and are rather scarce for prompt delivery, steam smalls are 6s. (\$1.46) to 6s. 6d. (\$1.58)

per ton; unscreened bunkers, from 9s. 6d. (\$2.32) to 10s. (\$2.44) f. o. b.; best Durham gas coals are firm and rather scarce, and up to 10s. (\$2.44) per ton f. o. b. is quoted.

The mercantile fleet of the north of England is largely composed of vessels which rely for outward freights upon coal cargoes from British ports. An outward freight enables a return cargo to be carried profitably at a lower rate of freight than would otherwise obtain, and the prices of imported commodities are thus cheapened. Coal cargoes are quickly loaded and discharged, and contribute materially to the profits of the shipping industry, and any falling off in coal shipments would prove a severe blow to north country shipping.

Outward coal freights are at present quoted at 3s. 9d. (91 cents) from the Tyne to Hamburg, 3s. 11d. (95 cents) to Cronstadt, and 3s. 7d. (87 cents) to Swinemünde. Mediterranean freights are steady at 7s. 9d. (\$1.89) to 8s. (\$1.95) from the Tyne to Genoa.

Opinion is fairly divided as to the final effect of the tax on the coal trade of the north of England. So far, excepting a few days of naturally unsettled business, the trade has steadied into its normal condition; the threatened strike of miners is averted, and at present there seems no likelihood of any marked change.

Coal and coke exported from the River Tyne (including coal for ship's use) during the year 1900 (in tons of 2,240 pounds).

Country.	Coal.	Coke.	Total.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Germany.....	1,765,170	11,282	1,776,452
Belgium and Holland.....	674,404	13,538	692,942
France.....	1,131,200	31,795	1,162,995
Russia.....	852,966	65,170	918,076
Italy and Malta.....	1,608,010	33,497	1,641,477
Spain and Gibraltar.....	690,078	136,225	826,303
Portugal.....	220,799	3,020	223,810
Norway.....	210,255	29,073	239,328
Sweden.....	422,753	24,589	447,342
Denmark and Iceland.....	327,668	9,859	337,527
Austria, Turkey, and Greece.....	153,700	29,324	183,024
Algeria, Egypt, and other African ports.....	433,942	2,850	436,792
United States.....	236,947	34,762	271,709
British America.....	35,761	1,505	37,266
South America.....	180,865	25,809	206,764
East Indies, China, and Japan.....	17,382	950	18,332
West Indies.....	1,850	.....	1,850
Australia.....	450	9,438	9,888
Total.....	8,964,131	467,746	9,431,877
Coastwise.....	5,076,163	12,889	5,089,052
Grand total.....	14,040,294	480,635	14,520,929

HORACE W. METCALF,

NEWCASTLE-ON-TYNE, May 20, 1901.

Consul.

PROSPECT FOR COAL IN FRANCE.

In view of the act of the English Parliament* imposing an export tax on English coal, I consider that the American product can be advantageously placed in competition with coal imported from any other country into France. The main obstacle is the high rate of ocean transportation. If this could be reduced considerably, there is no doubt that American coal would have a great future in this country.

In 1899, France imported 10,467,420 tons of coal, valued at \$38,-788,071; England sent 5,924,500 tons; Belgium, 3,769,290 tons; and Germany, 764,820 tons. The quantity of coal that has come from the United States does not appear to have been of sufficient importance to be mentioned specifically.

The above figures represent the importation of coal for consumption in France. A comparatively small proportion of foreign coal arrives at French ports in transit for other European countries, the figures for 1899 (including the coal imported for consumption) being 11,658,360 tons.

France produces a fair quality of coal, but not sufficient for the demand. The economical policy of the country has encouraged a system of utilizing coal dust, compressed into briquettes, which fuel is almost universally used on the railroad lines. As to steamboats running within city limits, excepting towboats coming from a distance, the smoke ordinance requires the consumption of coke.

JOHN K. GOWDY,
Consul-General.

PARIS, *May 15, 1901.*

GAS WATER HEATER IN FRANCE.

I have had an opportunity to examine a new gas water-heating machine, which it is claimed furnishes hot water to a number of rooms, and the gas in which can be lighted or extinguished at any distance from the heater. The apparatus may be placed in any part of the house. In the case of buildings furnished with water by a reservoir in the garret or mansard, the only requisite is that the apparatus shall be placed not less than 5 feet below the reservoir. A second contrivance closes that portion of the mechanism used to provide hot water, so that the supply may be received cold, as desired. The apparatus contains a device whereby gas not consumed

* Copy of the law, transmitted by the consul-general, has been filed for reference in the Bureau of Foreign Commerce.

is prevented from accumulating in the apparatus, and explosions are obviated.

In the experiment witnessed by me, one faucet was placed immediately at the apparatus and another some 50 feet away. The diminutive gas jet was lighted and turned into the apparatus, and the water feed-pipe faucet turned. Upon opening the discharge faucet, the gas was instantly lighted, and ten seconds later about 12 quarts of water at 35° C. was issuing from the faucet per minute. On opening the faucet half way, the supply came cold; on opening it a little more, hot water came; and on closing it, the gas was instantly extinguished.

The inventor asks from \$60 to \$70 each for the apparatuses.

HAROLD S. VAN BUREN,

NICE, May 17, 1901.

Consul.

NEW PAPER FACTORY NEAR NICE.

In my special report upon the paper industry of this district, dated January 27, 1899,* I noted the factory at Pont de Peilles as the most important one here. I also mentioned the undeveloped water power in the Var region. I am now informed that a company is being formed to take over the factory of Pont de Peilles and to establish it in the Var region, employing electric force to the extent of 100 horsepower. It is claimed that, by this means, the production of paper will amount to 3,500 to 4,000 kilograms (7,700 to 8,800 pounds) per twenty-four hours. The capital will be 500,000 francs (\$96,500), of which 225,000 francs (\$48,250) is already subscribed.

I think it of interest to our manufacturers to give, even at this early day, the estimated annual production of this factory, with the qualities of paper proposed to be manufactured and the minimum prices of sale.

Quality.	Annual production.	Minimum price per 220.46 pounds.
	<i>Pounds.</i>	
Ordinary gray.....	1,984,140	\$3.28
Blue wrapping.....	352,736	5.40
Straw.....	77,161	3.86
Ordinary heavy white.....	82,672	4.63
Ordinary poster.....	33,069	9.65
Blue glazed, fine.....	52,910	8.11
Green glazed.....	44,092	5.60
Heavy white glazed.....	44,092	5.40
Tar.....	11,023	4.83

*See Special Consular Reports, Paper in Foreign Countries.

In this estimate, the minimum price during the past ten years has been taken as a basis. At present, the market prices of the "ordinary gray" and "blue wrapping" are 19 and 30 francs (\$3.67 and \$5.79), respectively, per 220.46 pounds. During the year, the price of "ordinary gray" has been steady at 20 to 21 francs (\$3.86 to \$4.05) per 220.46 pounds.

The present production of the Pont de Peilles factory is only about 3,800 pounds per twenty-four hours and of the commonest paper.

HAROLD S. VAN BUREN,

NICE, *May 23, 1901.*

Consul.

PROSPECTS OF SPANISH ALMOND AND RAISIN CROPS.

In answer to inquiries from persons in the United States, I submit the following report on the prospects of the almond and raisin crops in this district for 1901:

ALMONDS.

Until after the early spring windstorms, it was impossible to give definite information; but now that these storms are over, it may be said that the almond crop promises to be at least up to, if not slightly above, the average. But for heavy frosts during early April, in the provinces of Malaga and Granada, there would have been an unusually large yield.

The famous Jordan almonds of commerce are grown exclusively in the province of Malaga, and from 125,000 to 130,000 boxes is a fair average crop. "Valencia" almonds are also a Malaga product, and an average yield would be about 175,000 boxes, which, in addition to the Jordan almonds, would indicate a total crop this year of about 300,000 boxes.

Of last year's Jordans, only a very small proportion remains unsold, but the warehouses of Malaga still contain a considerable left-over stock of Valencias. There is just now some demand for Jordans at market prices of from \$7 to \$7.25 per box of 28 pounds, cost and freight included. Valencias are not much in demand, but the market price is from \$5.50 to \$5.75 per box of 25 pounds, cost and freight included.

During the year ended December 31, 1900, there were exported from Malaga to the United States 56,425 boxes of Jordans and Valencias, at prices generally higher than ever known before. Some of Malaga's leading merchants bought when the market was highest, and have since been compelled to sell at largely reduced prices;

others are largely stocked with Valencias, which cost about 25 per cent more than the market price of to-day. The result has been, that at least one leading firm has abandoned the almond business altogether, and others are ready to follow.

RAISINS.

Malaga raisins are famous all over the world. At present, the production, which had grown smaller some years ago because of the ravages of the phylloxera, is on the increase. A good average crop would mean about 1,200,000 boxes. Last year, owing to floods and storms, the crop was short many thousand boxes, and in all the commercial history of Malaga there never was known such fluctuation in prices. Merchants, as a rule, had a bad year and lost large sums of money. This year, there is every promise of an abundant crop of a fine quality, with opening prices probably about as follows:

Malaga clusters, from \$1.25 to \$3.25 per box of 22 pounds net, cost and freight included; loose, from 75 cents to \$1.75; and seedless, from 70 to 75 cents per box.

Of last year's crop, from 40,000 to 50,000 boxes remain unsold. These are mostly loose raisins, quoted at present at 75 cents a box. If these are not sold, they will be utilized in making wine.

I would invite attention to the fact that the above prices include cost and freight to any port of Europe or to the United States.

BENJ. H. RIDGELY,

MALAGA, *May 15, 1901.*

Consul.

TRADE WITH MALTA.

I would call the attention of our manufacturers to the advisability of drummers calling at Malta. Already the demand for our goods is increasing, but this is not due to the presence here of personal representatives of our houses. Many American firms are in the habit of sending drummers to many countries throughout Europe, but as yet they have completely ignored these islands. With one exception (and in this case the best results were attained), I have not heard of or seen an American drummer during my stay here, nearly four years. I am prompted to make this suggestion from the fact that for the past few weeks representatives of English and German firms have been at work here and have secured large orders. Why should not American agents do equally as well? Catalogues and price lists are useful, and from the large numbers that I have received and distributed, much business has resulted; but not nearly as much as if personal representatives had been here. Many American drummers travel in Italy; it is an easy matter to reach Malta

from that country, there being frequent steamship connection from Genoa, Naples, and Sicilian ports. Those having Adriatic ports in their itineraries will find it very easy to secure passage from here to those points. There is also frequent steamship connection with Alexandria, Tunis, Constantinople, and other places. The direct communication which Malta now has with New York by the Mediterranean Steamship Company is a great factor in the increase of our trade here, and should be taken advantage of. Ships are dispatched regularly from New York, the voyage taking about twenty days (much less than when goods are sent via English and German ports), and freight rates are lower.

There is a chance here for our hardware, oils and paints, canned goods, hats (especially straw hats), stationery, and many other lines of goods. There are several banking houses of good standing, and duties upon imported goods are light—being at present confined to food stuffs and cattle. Anyone speaking English or Italian can do business here.

JOHN H. GROUT,

MALTA, *May 2, 1901.*

Consul.

SHIPPING GOODS TO MALTA.

The merchants of Malta have recently been making many complaints at this consulate of the way in which American shippers disregard instructions in forwarding goods. In bringing this matter to the attention of our merchants and exporters, I desire to say that such treatment serves to discourage Maltese buyers, and will ultimately result in a decreased demand for American goods. There is but one direct means of communication between the United States and Malta, and that is the Mediterranean and New York Steamship Company. This is an old line, and must be well known to shipping agents in New York and other American cities. A little over two years ago, this company established a branch line between Malta and New York. Since then, owing to lower freight rates and lessened liability of damage (there being no necessity of rehandling goods), the demand for United States manufactures has been steadily increasing. I cite the following as examples of the complaints received:

One of the local merchants had been buying iron in different shapes in the United States. Some time ago, he wrote to the American firm with which he had been dealing to ship via the direct line. Instead of complying with this request, the managers replied that inasmuch as they were on the field, they must be allowed to ship as

seemed best to them. The goods were sent by the roundabout way of Hamburg, whence they were transshipped to Malta. To the Maltese purchaser, this meant higher freight charges and considerable loss of time.

Again, a gentleman here ordered a launch from the United States. Instructions were cabled to send it by the direct line. The manufacturer, being located in the central part of the United States, and not knowing the means of shipment from New York, wrote to a shipping firm in that city for information. He was told that there was no direct line from New York to Malta. Yet, at that time, as at present, vessels were being regularly dispatched to Valletta. Instead of carrying out the cabled instructions and marking the launch "care of Mediterranean and New York Steamship Company," which would have guaranteed prompt delivery, the manufacturer forwarded the boat through the shipping firm above mentioned via Hamburg. Had it been sent by the direct line, as ordered, the cost would have been about \$75, including insurance, and the boat would have arrived here in about twenty-three days. By the route selected, it reached Malta fully a month later and the cost of freight, which did not include insurance, was nearly double.

These are but two of the many cases that have been called to my attention. I have been informed by one merchant that unless he can have his goods sent him according to instructions, he will have to place his orders elsewhere. In a place like Malta, where very small margins of profit are the rule, freight rates and time are important considerations in the purchase of goods. In my desire to see a constant increase in the sale of our wares here, I have again and again cautioned our merchants to be sure to select the direct line in making shipments. It is somewhat discouraging to see this advice disregarded.

In conclusion, I would also state that complaints have been made of the way in which some of our firms pack their goods. I know of one shipment, for example, of clocks in fancy, light cast-iron frames. On their arrival, almost all were found to be broken. They had been packed too closely and were not properly protected. It is only fair to say, however, that these goods were shipped via Hamburg, and perhaps the rehandling at that port was responsible for the breakage.

JOHN H. GROUT,
Consul.

MALTA, April 25, 1901.

MALTESE TOBACCO TRADE.

Two descriptions of tobacco are imported at Malta for the purpose of manufacture, viz, Turkish and Greek for cigarettes and American for cigars. Although an attempt was made some two years ago to introduce machines for cigarette making, the manufacturers preferred hand work. The principal cigarette factory here employs from ninety to one hundred hands. A good deal of the work of the smaller concerns is done at the homes of the employees. The manufacture of cigarettes in the islands is not only sufficient for local consumption, but for an export trade. Prohibitive tariffs, etc., have much reduced the once-flourishing trade in Maltese cigars. No machinery will probably be employed in making cigars. Women work for 3 cents for every one hundred cigars rolled and cut.

The present source of supply is as much from the United States direct as from European tobacco centers. Payments are made here on draft against documents, unless a banker's credit in London or Paris is stipulated. A recent tariff scare induced importers to stock heavily. Tobacco is at present upon the free list.

JOHN H. GROUT,

MALTA, *May 13, 1901.*

Consul.

MINING CONCESSIONS IN SOUTHERN FRANCE.

It does not appear to be generally known that a mining concession in France carries with it a certain governmental guaranty. In point of fact, a "concession" here, once granted, is classed as real property and pays yearly taxes. When an individual discovers traces of mineral wealth, a preparatory petition permits him to undertake preliminary work, which is executed under the supervision of official mining engineers. These report to the ministry when they are convinced that sufficient mineral exists to warrant the commercial exploitation of the mine, or that the value of the mine is "nil." In the former case, a concession in due form is granted, and in the latter a concession is refused.

This "modus operandi" is so little known abroad that I have stated it as a preface to what follows.

It would appear that the recent advance in the price of coal has attracted the attention of the Government to the fact that concessions granted years ago have lain dormant. The Government can annul a concession in case it is not sufficiently utilized, and the prefects of this and neighboring districts have notified the owners of

certain concessions that they must proceed within three months to develop the same, or have them annulled.

In 1894, the production of low-class coal in the Department of the Bouches-du-Rhône amounted to 385,000 tons, and in 1896 it had fallen to 364,585 tons. With the advance in price of foreign coal, the production in 1899 rose to 491,260 tons, and in 1900 to 564,000 tons, an augmentation of 60 per cent over the production of 1896.

HAROLD S. VAN BUREN,

NICE, *May 21, 1901.*

Consul.

ANTWERP IVORY MARKET.

The second quarterly sale was held on the 1st of May, the ivory offered and sold being as follows:

Kongo:	Pounds.
Hard.....	95,431
Soft.....	3,344
Angola.....	21,690
Gaboon.....	13,087
Kamerun.....	11,278
Ambriz.....	2,820
Senegal.....	1,631
Mozambique.....	5,320
Abyssinia.....	143
Siam.....	26
Hippopotamus tusks.....	185
Total.....	154,955

The sales for the same quarter in the two preceding years were 208,312 pounds in 1900 and 173,056 pounds in 1899.

The bidding was extraordinarily active, and the prices paid for heavy and medium weight tusks showed an increase of 96 cents and \$1.44 per 2.2046 pounds, particularly for the Kongo varieties. For the soft ivory of all sources, the rise was still more marked, the price in some instances having advanced by \$1.73 per 2.2046 pounds.

Prices for tusks for bangles and balls rose 19.3 cents to 38.6 cents per 2.2046 pounds for the oversizes, and 19.3 cents for the heavy weights of the same variety.

The stock on hand amounts to 242,500 pounds.

The third quarterly sale is to take place on the 30th of July next.

GEO. F. LINCOLN,

Consul-General.

ANTWERP, *May 9, 1901.*

AMERICAN OFFICE FURNITURE IN THE NETHERLANDS.

The sale of American furniture in the Netherlands does not increase. The reasons alleged are: (1) Imitations of American desks are made by Dutch manufacturers and sold at a lower price than the original—American prices range from 60 to 270 florins (\$24 to \$108), while Dutch desks are sold as low as 35 florins (\$14); (2) American manufacturers sell draft against bill of lading, while the Dutch manufacturers allow a credit of from three to six months; (3) there is no stock of American furniture here, and desks must come either from the United States or from branch houses at London, which last requires eight days; while Dutch manufacturers deliver at once.

It would be advisable for American manufacturers to have agents here with full stock, thus insuring speedy delivery on order.

This office is provided with two fine oak roll-top desks, and also with a revolving bookcase of the best design, dictionary stand, and leather furniture. I have lately had made for the consulate a newspaper rack, but had to send to Paris for the file holders. These articles are excellent advertisements and attract favorable attention, but are too expensive to sell readily.

Still, I believe that if a proper exhibit of American office furniture were made here, some business—especially in the cheaper grades—could be done.

FRANK D. HILL,
Consul.

AMSTERDAM, *May 21, 1901.*

DRAWBACKS TO AMERICAN BICYCLE TRADE IN ENGLAND.

Two or three years ago, the American bicycle trade was in a flourishing condition in England and Wales, our wheels being greatly admired on account of their good workmanship and lightness.

Gradually, however, complaints were heard, and at last the bicycles fell into bad repute, and the import trade in this line from the United States has lost considerable ground.

I have for some time been making inquiries into the causes of this and submit the following, which I hope American bicycle manufacturers will read, for there is no reason why our machines should not once more come to the front. Our manufacturers must not

overlook the fact that English climate and roads are totally different from ours, and should make alterations in cycles for the English trade, as follows:

First. Handle bars should have seven-eighth-inch stems; width, about 15 inches.

Second. Brake work should be better fitted. Rim brakes are now used on almost all machines. It is claimed here that a good set of brake work has not been seen on an American machine.

Third. Cranks should be of the square pattern, keyed on both sides of axle; axle to be five-eighths of an inch in diameter at ends. Cranks should be 7 inches long, with holes tapped, with right and left hand threads, in ends for pedals; pedal spindles, 9, 16, and 20 threads. The crank shaft should be of one piece; not forged in two pieces connected by a screw. Owing to the hard, stony, and, for the most part, rough surfaced English roads, this screw becomes loosened and gives constant trouble to the English rider, while the one-piece crank is supposed to give firmness and strength to the whole machine.

Fourth. Saddle pillar tops should be seven-eighths of an inch in diameter, so as to take the standard English saddles. For some reason, English riders do not like American saddles.

Fifth. Rims should be of steel. Wooden rims, owing to the damp atmosphere and long-continued rains in this country, are liable to warp and the spokes to become loosened, resulting in total disintegration of the wheels. There is reason to believe that this could to a great extent be averted, were our manufacturers to select thoroughly seasoned lumber for the manufacture of rims for exportation.

Sixth. The tires (double tubes) should always be wired on or hooked on.

The foregoing information I have gleaned from numerous bicycle firms and from private parties who have owned American cycles.

Lately, several American firms have requested addresses of the most prominent cycle firms in Swansea. The Dan Morgan, Limited, bicycle agents and manufacturers, and the Cambrian Cycle Company are among the most important.

GRIFFITH W. PREES,

SWANSEA, *May 17, 1901.*

Consul.

COMPETITION FOR AUTOMATIC LORRY IN GREAT BRITAIN.

The Department has received from the British embassy in Washington, under date of June 10, 1901, copy of a notice of a competition for a self-propelled lorry, or wagon, for military purposes. Three prizes are offered for the three self-propelled lorries best suited to military requirements: A first prize of £500 (\$2,433.25), a second prize of £250 (\$1,216.62), and a third prize of £100 (\$486.65).

Firms or individuals intending to enter for this competition must send in their names to the secretary, mechanical transport committee, War Office, Horse Guards, Whitehall, London, England, on or before September 1, 1901. The conditions are summarized as follows:

CONDITIONS.

No vehicle will be admitted to the trials unless a fully dimensioned set of drawings and a specification, giving complete details of the lorry and trailer exactly as submitted for trial, together with a statement of the purchase price, have been lodged with the secretary, mechanical transport committee, before December 4, 1901. The trials, carried out by the War Office committee on mechanical transport, will commence in England on Wednesday, December 4, 1901, and will extend over a considerable period. The exact nature of the trials will be decided by the above committee, which reserve to themselves full powers to carry out any additional tests, and also the power of rejecting any vehicle which does not comply with the requirements published herewith, or of suspending, at any stage, the trials of any vehicle which in their opinion has proved itself unsuitable. A firm or individual may enter more than one lorry, but the conditions must be complied with for each separate lorry entered. All designs and specifications will be considered confidential. Those of the vehicles that may be purchased will be retained for the purposes of the Government, but without prejudice to patent rights. His Majesty's Government will have the right of purchasing, after the trials, any or all of the competing vehicles at the price stated by the competitor. The designs and specifications of vehicles not purchased will be returned to the competitors after the trials.

STATEMENT OF REQUIREMENTS OF SELF-PROPELLED LORRY FOR MILITARY PURPOSES.

The lorry to be capable of being used on rough roads, and to a limited extent across country. To be able to go wherever a country cart can go, and to be capable of being driven through an opening 7 feet 6 inches wide. Net load to be 5 tons, of which 3 tons must be carried on the lorry and 2 tons on a trailer; these weights are exclusive of fuel and water, all of which must be carried on the lorry. The total platform area not to be less than 15 square feet for each ton of net load; both platforms to be fitted with removable sides and ends about 2 feet high. The top of the lorry platform when ready for loading not to be more than 4 feet 3 inches from the ground level; that of the trailer not more than 4 feet. The lorry and trailer carrying their full net load of 3 and 2 tons, to be capable (1) of a speed of 8 miles per hour on fairly level roads in fair condition; (2) of a mean speed of at least 5 miles per hour on average roads, up and down hill; (3) of taking its full

load without assistance on an average road, up a slope of 1 in 8. The weights should be so distributed that the lorry should always be under control on slopes up to 1 in 8, whether loaded or empty. There must be proper arrangements to avoid damage from mud or dust. Any casings used must be easily removable. The lower portions of the machinery must be strongly protected and not less than 18 inches from the ground, except the driving gear, which should be kept as high as possible. The lorry to be capable of efficient control, of steering at all speeds, of reversing at low speeds, and of being worked and controlled by one man. It must also be able to run for forty-eight hours without overhauling or cleaning. The driving wheels not to be less than 4 feet 6 inches in diameter, nor less than 9 inches wide across the tires, which may be fitted with plain diagonal road strips. No restriction is placed on nature of fuel or class of engine—steam, internal combustion, or otherwise—except that oils under 75° F. flash point (Abels' close test) must not be employed. In the case of steam engines, an alternative arrangement for burning solid or oil fuel is desirable, and the engine must comply with the requirements of the Manchester Steam Users' Association. No limit is placed on tare weight. In judging the merits of competing vehicles, the following points will be considered: (a) Prime cost, having due regard to efficiency; (b) distance that can be traveled by the vehicles fully loaded with 5 tons, carrying fuel and water on the lorry; (c) economy in weight; (d) durability; (e) accessibility of all parts; (f) simplicity of design; (g) ease of manipulation; (h) absence of noise, vibration, and smoke.

For further information, application should be made to the military attaché, British embassy, Washington.

AMERICAN GRAIN ELEVATOR AT LEITH.

Although the imports of grain at Leith have for many years been a large and increasing item in the trade of this port (last year the total of wheat, corn, barley, and oats was about 14,000,000 bushels), there has never been either a grain elevator for unloading vessels or a warehouse of considerable dimensions for the storage of grain. Cargoes are lifted by the steam-windlass system, removed to wagons or cars by dock laborers, and either shipped directly from the quay to purchasers or stored in the small warehouses of individual importers. Employed by the dock commission, an English firm recently constructed a bucket elevator to be operated by hydraulic power for unloading vessels, but having no storage house in connection with it. This has not been used as yet, owing to defects, and shipping people and merchants alike speak of it as a failure.

The construction of a new elevator and warehouse combined will now be undertaken. It is a private enterprise, authorized by the dock commission, from whom a lease of the required ground has been obtained. The contract for the building and appliances has been let to Messrs. Botsford, Jenks & Co., of Port Huron, Mich. Not only will the elevator and warehouse, including the machinery, be of American design and construction, but all the building materials, from the steel and timber even to the nails, will be brought

from the United States. The latest and best system for lifting the grain, handling it in bulk and weighing it automatically, will be used, manual labor being practically dispensed with. When working at full pressure, the elevator will discharge grain at the rate of 8,000 bushels per hour. The warehouse will have a capacity of 1,000,000 bushels. Throughout the new concern, electric power is to be used. The cost of the elevator and warehouse, together with appliances, will be about \$500,000.

RUFUS FLEMING,

EDINBURGH, *May 16, 1901.*

Consul.

TIN-PLATE INDUSTRY OF WALES.

The condition of the Welsh tin-plate trade, which is the chief industry of this district, is the source of great anxiety to local manufacturers. The cause of this depression is attributed to the keen competition of the United States. Since the boom preceding the adoption of the tariff of 1890 by the United States, the Welsh tin-plate trade has been very irregular. All works have been periodically idle, although the reasons given by the masters for closing down are "restriction of make," "remodeling of finishing department," etc.

During the past five years, methods of work in the tin house or finishing department have undergone a complete change, and the coating of the black-plate sheet is now done in an entirely different manner. Formerly, a tinman, wash man, greaser, cleaner, and duster were employed to coat and finish the black plate; the work is now effectively done by a tinning machine, manipulated by a tinman and a boy.

Following is a description of the method of operating these tinning, cleaning, and dusting machines:

The tinman places a wet black-plate sheet in the tinning pot, which contains a chemical compound called "flux;" from this receptacle the sheet, by means of guides and rolls, which I shall call rolls No. 1, passes through a bed of molten tin. Then, by means of guides and rolls No. 2, the sheet is conducted to a grease pot, which is a bath of hot palm oil. From this bath the sheet, now thoroughly coated, emerges between three pairs of rolls No. 3, and is transferred by the boy to the cleaning machine. In the cleaning machine, the tinned sheet is conveyed by small rollers through layers of bran, and all grease or oil spots are removed. The sheet is finally placed in a dusting machine. This last is a very simple affair, consisting of three or more pairs of rollers covered with sheepskin, between

which the sheet passes. The latter is then ready for the assorting room.

This method of coating and finishing tin plates is a great improvement on the old style. In addition to saving time—the whole process occupying but a few seconds—labor, and expense, the finished article is better. It bears a clearer and more uniform surface; the "yield," also, is greater, an average of about 2 pounds of tin being used per standard box of plates.

Notwithstanding the extensive improvements, Welsh manufacturers still find competition keen, and a new workmen's wage list is under consideration, to replace that of 1874. This means a reduction in wages of from 19 to 70 per cent.

The present rate of freight on tin plates to New York is 9s. (\$2.19) per ton, and the bulk of plates shipped to that port consists of 18¾ by 14 oil plates.

Every effort of shippers is now concentrated on opening up new markets for this trade in the Far East, and frequent shipments are made to Singapore, China, and Japan. Extensive exports are also made to France, Germany, Austria, Italy, and Russia.

GRIFFITH W. PREES,

SWANSEA, May 16, 1901.

Consul.

BOAT-STOPPING APPARATUS IN NORWAY.

A resident of Sweden, Count K. A. Posse, has invented a boat-stopping apparatus which will prevent collisions and facilitate the maneuvering of large vessels.

Recent experiments have been made on a steam launch accommodating one hundred and sixty persons, with an engine of 30 indicated horsepower, making 9 knots an hour.

The new apparatus consists of shutters, applied on the starboard and port sides, about one-fourth of a boat length from the stern. These can be opened and shut by means of a lever applied on the deck and placed so as to be easily maneuvered by the helmsman. The shutters consist of two quadrilateral steel plates, with special packing boxes in the so-called shutter houses. Experiments showed that when the launch was going at full speed, it could be stopped in fifteen seconds at half a boat length by reversing and extending the shutters.

The apparatus may be applied to any steamer. The invention has been patented in all the leading countries.

VICTOR E. NELSON,

BERGEN, May 24, 1901.

Consul.

NEW STEAMSHIP LINES FROM EUROPE TO GULF PORTS.

ROTTERDAM-HAVRE-GALVESTON.

Consul Thackara reports from Havre, May 9, 1901:

The Hogan Line, which has from time to time been dispatching freight steamers from Galveston to Havre and Rotterdam during the cotton season, will inaugurate, on May 15 next, an all-year service between the above-mentioned ports. Through bills of lading will be issued to Amsterdam, Ghent, Stettin, and to Swedish and Baltic ports, etc., via Rotterdam. The service will be monthly until the middle of September, when it will be increased by as many additional sailings as the trade requires.

In addition to the steamers for Havre and Rotterdam, others will be dispatched to Rotterdam via Dunkirk or Bremen, if sufficient cargo offers.

The following steamers will compose the line:

	Tons.
Mohawk	7, 850
Manitoba.....	7, 850
Mineola.....	7, 850
Monomoy	7, 850
Montauk.....	6, 000
Matteawan.....	6, 000
Masconomo	6, 600

Information about rates, etc., can be obtained from T. Hogan & Sons, managers, New York; Daniel Ripley, Galveston, Tex.; Langstaff, Ehrenberg & Pollak, Havre, France; and Hudig & Blokhuyzen, Rotterdam, Holland.

ANTWERP-VERACRUZ-NEW ORLEANS.

Vice-Consul Murphy, of Frankfort, May 4, 1901, sends a translation from the Berlin South American Outlook, as follows:

The "Société des Affréteurs réunis," of Paris and Havre, intends in the near future to establish regular steamship connection between the ports of Antwerp, Havre, Habana, Veracruz, Tampico, Progreso, and New Orleans. On the 30th of each month a ship will leave Antwerp, touching at Havre, from which port it will sail on the 5th of the following month.

The first ship is expected to reach New Orleans on May 15, and will begin the home voyage on June 1.

LEITH-NEW ORLEANS-GALVESTON.

Under date of May 16, 1901, Consul Fleming, of Edinburgh, says:

The new dock at Leith, to be called the Imperial Dock, which was briefly described in my annual report for 1899,* will be opened in June or July next, affording accommodation to the larger class of vessels in the American and eastern trades, which carry from 7,000 to 10,000 tons of cargo. Soon after the opening of this deep-water dock, a line of steamers, consisting of four vessels of from 8,000 to 10,000 tons burden, will be established by the North Atlantic Steamship Company, Limited, to ply between Leith and New Orleans and Galveston. The special object of this line is to carry grain and cotton. These vessels are to run during the season only—that is, from September to March, inclusive, each year. The time from New Orleans to Leith will be about twenty-five days.

BRITISH COTTON-GOODS TRADE IN LATIN AMERICA.

I inclose official tables of exports for the last three years (1898, 1899, and 1900) of English cotton piece goods to Latin American countries.

I also give, for comparison, the total quantity and value of cotton piece goods shipped from the United States to the same countries during the same period.

The average price for all kinds is: United Kingdom, 4½ cents per yard; United States, 5 cents per yard.

These tables have been carefully classified and compiled, on account of their paramount importance to our commerce; for, with proper effort and trifling expense, our exports to those countries could be quadrupled.

The relative trade in question is as follows, for the three years:

	Yards.
From the United Kingdom.....	1, 784, 547, 400
From the United States.....	198, 814, 759
Difference against United States.....	1, 585, 732, 641

Which is upward of 530,000,000 yards per year of low-priced cotton piece goods, all of which we make, or can make.

Experts—of course familiar with Spanish—should be sent without delay to those countries to procure samples, details of packing,

* See Commercial Relations, 1899, Vol. II, p. 211.

etc. (which differ for each country), and terms of credit. The American terms of "cash on receipt of bill of lading" will not gain the trade. We must conform to the customs of those countries.

WILLIAM F. GRINNELL,

MANCHESTER, May 4, 1901.

Consul.

UNBLEACHED GOODS.

Total quantity and value of gray or unbleached cotton piece goods shipped from the United Kingdom to Latin American countries during the years 1898, 1899, and 1900.

Country.	1898.			1899.		
	<i>Yards.</i>			<i>Yards.</i>		
Mexico	366,600	£2,263	\$11,012.88	281,600	£2,222	\$10,813.36
Brazil	13,039,900	81,849	398,804.80	7,930,700	51,665	251,427.72
Central America.....	12,160,300	68,609	333,885.69	13,285,800	76,001	360,858.86
Peru.....	7,179,600	48,611	238,025.38	4,173,400	30,252	146,734.70
Colombia.....	4,851,900	30,803	149,902.79	4,541,900	26,817	130,504.93
Venezuela.....	2,118,000	16,378	79,703.53	1,975,100	14,866	72,345.38
Argentine Republic.....	24,451,100	183,958	895,231.60	20,705,300	152,127	740,326.04
Uruguay	8,948,300	65,504	318,775.21	6,282,900	48,224	234,779.42
Chile	9,811,200	68,225	332,016.06	14,003,200	89,507	435,585.81

Country.	1900.		
	<i>Yards.</i>		
Mexico	159,200	£1,415	\$6,886.00
Brazil	1,813,700	14,652	71,303.05
Central America.....	12,356,800	85,019	413,744.96
Peru.....	2,090,700	17,952	87,363.40
Colombia.....	3,733,000	21,657	105,393.79
Venezuela.....	2,804,300	22,603	110,435.48
Argentine Republic.....	19,419,300	161,201	784,484.66
Uruguay	4,203,200	38,838	189,005.12
Chile	11,719,800	99,695	441,221.22

This makes a total of 214,346,700 yards; the average price per yard being 3½ cents.

BLEACHED GOODS.

Total quantity and value of bleached cotton piece goods shipped from the United Kingdom to Latin American countries during the years 1898, 1899, and 1900.

Country.	1898.			1899.		
	<i>Yards.</i>			<i>Yards.</i>		
Mexico	23,438,500	£189,640	\$922,883.06	22,944,000	£188,803	\$918,809.79
Central America.....	9,573,900	66,260	322,454.29	12,000,500	83,614	406,907.53
Colombia.....	17,073,800	127,599	620,916.73	17,623,500	122,565	596,462.57
Venezuela.....	14,387,600	107,815	524,681.69	16,269,400	115,119	560,226.61
Peru.....	12,519,200	104,857	510,286.50	11,069,800	104,666	509,357.08
Chile	59,697,000	173,405	843,875.43	22,563,300	181,742	884,447.44
Brazil	59,068,300	476,278	2,317,806.89	32,434,900	304,700	1,482,822.55
Uruguay	12,325,600	128,835	626,975.52	10,052,000	106,556	518,554.77
Argentine Republic.....	37,475,200	427,987	2,082,798.53	31,292,700	300,146	1,392,645.50

Total quantity and value of bleached cotton piece goods, etc.—Continued.

Country.	1900.		
	Yards.		
Mexico	19,178,900	£182,746	\$889,333.40
Central America.....	16,897,100	133,453	649,449.02
Colombia.....	10,278,400	64,766	315,183.73
Venezuela.....	18,075,500	134,445	654,276.59
Peru.....	8,322,000	82,451	401,247.79
Chile.....	25,532,000	249,608	1,214,717.33
Brazil.....	24,837,300	260,420	1,267,333.93
Uruguay.....	7,430,700	80,395	435,040.76
Argentine Republic.....	34,005,300	447,306	2,176,814.64

The total is 547,665,400 yards, the average price per yard being $4\frac{1}{4}$ cents.

PRINTED GOODS.

Total quantity and value of printed cotton piece goods shipped from the United Kingdom to Latin American countries during the years 1898, 1899, and 1900.

Country.	1898.			1899.		
	Yards.			Yards.		
Mexico	12,891,700	£122,416	\$595,737.46	16,547,800	£146,747	\$714,144.27
Central America.....	7,780,600	62,001	301,727.86	14,701,500	106,189	516,768.76
Colombia.....	19,449,800	157,194	764,984.60	17,458,400	139,676	679,733.25
Venezuela.....	13,259,400	106,961	520,525.70	15,831,200	113,460	552,153.09
Peru.....	11,260,700	110,243	546,497.55	13,098,200	131,738	641,102.97
Chile.....	13,461,700	118,445	576,412.59	19,856,300	170,906	832,714.04
Brazil.....	94,108,500	959,131	4,667,611.01	58,110,400	602,083	2,930,036.91
Uruguay.....	13,679,900	134,485	654,471.25	15,868,000	149,567	727,867.80
Argentine Republic.....	39,623,200	386,351	1,880,177.14	48,417,600	459,020	2,233,820.83

Country.	1900.		
	Yards.		
Mexico	11,931,000	£120,414	\$585,924.73
Central America.....	20,954,500	172,254	838,274.00
Colombia.....	8,139,100	59,692	290,491.11
Venezuela.....	13,424,700	113,504	552,367.21
Peru.....	10,468,200	116,336	566,149.14
Chile.....	35,135,200	342,032	1,664,498.72
Brazil.....	46,991,200	517,710	2,519,435.71
Uruguay.....	10,191,900	103,549	503,921.20
Argentine Republic.....	44,086,200	478,752	2,329,846.60

This makes a total of 646,636,900 yards; average price per yard, $4\frac{1}{2}$ cents.

DYED GOODS.

Total quantity and value of dyed or manufactured of dyed yarn cotton piece goods shipped from the United Kingdom to Latin American countries during the years 1898, 1899, and 1900.

Country.	1898.			1899.		
	<i>Yards.</i>			<i>Yards.</i>		
Mexico	6,969,400	£84,817	\$412,761.93	8,594,600	£102,040	\$496,577.66
Central America.....	3,527,900	36,655	178,381.55	4,928,700	50,391	245,227.80
Colombia.....	6,634,500	71,812	349,473.09	6,460,400	67,635	329,145.72
Venezuela.....	4,107,100	39,492	192,187.81	8,730,300	71,122	346,115.21
Peru.....	7,036,000	76,543	372,496.50	7,015,400	79,532	387,042.47
Chile.....	10,184,100	103,825	505,264.36	18,461,100	171,401	834,560.95
Brazil.....	42,229,800	449,665	2,188,294.72	34,085,600	401,399	1,953,364.43
Uruguay.....	10,207,100	119,638	582,218.32	10,475,100	117,738	572,971.07
Argentine Republic.....	22,621,000	276,056	1,343,426.52	30,200,900	367,117	1,796,574.88

Country.	1900.		
	<i>Yards.</i>		
Mexico	7,103,300	£96,942	\$471,768.24
Central America.....	8,657,800	94,126	458,064.17
Colombia.....	3,102,100	31,061	151,158.35
Venezuela.....	8,292,300	79,238	385,611.72
Peru.....	6,733,800	84,724	412,309.34
Chile.....	25,638,800	315,972	1,537,677.73
Brazil.....	31,382,400	403,459	1,963,433.22
Uruguay.....	8,717,600	112,708	548,493.48
Argentine Republic.....	33,774,500	474,679	2,310,025.35

This makes a total of 375,880,600 yards; average price per yard, 5½ cents.

TOTAL COTTON GOODS.

Total quantity and value of cotton piece goods of all kinds shipped from the United Kingdom to Latin American countries during the years 1898, 1899, and 1900.

Country.	1898.			1899.		
	<i>Yards.*</i>			<i>Yards.*</i>		
Mexico	43,606,200	£399,136	\$1,942,395.34	48,368,000	£439,812	\$2,240,345.09
Colombia.....	48,010,000	387,390	1,885,277.23	46,084,200	356,693	1,735,846.48
Brazil.....	208,450,700	1,967,167	9,573,218.20	132,561,600	1,359,838	6,617,651.62
Argentine Republic.....	124,174,800	1,274,409	6,201,911.39	130,615,400	1,368,410	6,659,367.26
Central America.....	33,042,700	233,525	1,136,449.41	44,925,500	316,195	1,538,762.96
Venezuela.....	33,872,100	270,646	1,317,098.75	42,806,000	314,567	1,530,840.30
Peru.....	37,995,500	340,554	1,657,306.04	36,356,800	346,088	1,684,237.25
Chile.....	53,459,700	464,159	2,258,829.77	74,883,900	613,646	2,980,308.25
Uruguay	45,160,900	448,462	2,182,440.32	42,678,000	422,105	2,054,173.98

*Average price per yard, 4½ cents.

Total quantity and value of cotton piece goods of all kinds, etc.—Continued.

Country.	1900.		
	Yards.*		
Mexico	28,372,400	£401,517	\$1,953,982.48
Colombia	25,252,600	177,176	862,227.00
Brazil	104,937,600	1,196,208	5,821,784.21
Argentine Republic.....	131,285,300	1,561,938	7,601,171.27
Central America.....	58,866,800	484,892	2,359,726.91
Venezuela.....	42,596,800	350,880	1,707,557.52
Peru.....	27,614,700	301,463	1,467,060.68
Chile.....	98,025,800	998,277	4,858,115.02
Uruguay	30,543,400	343,400	1,671,594.08

*Average price per yard, 4½ cents.

AMERICAN PIECE GOODS.

Total quantity and value of cotton piece goods of all kinds shipped from the United States to Latin American countries during the years 1898, 1899, and 1900.

Country.	1898.		1899.		1900.	
	Yards.*		Yards.*		Yards.*	
Mexico	7,448,585	\$449,076	9,044,291	\$537,229	5,042,352	\$355,531
Colombia.....	6,954,587	313,727	7,374,654	362,031	4,947,888	275,308
Brazil	10,446,148	633,130	7,631,384	467,201	4,350,873	309,304
Argentine Republic.....	2,894,206	200,281	2,197,212	136,612	1,545,765	104,722
Central America.....	11,290,813	484,588	15,389,949	659,824	14,870,608	788,644
Other South American countries	32,596,568	1,402,030	21,963,595	1,030,258	32,874,981	1,771,760

*Average price per yard, 5 cents.

GERMAN TRADE WITH SOUTH AMERICA IN 1900.

Vice-Consul Murphy writes from Frankfort, May 4, 1901:

Germany's trade with the principal South American republics during the last two years was:

Imports.

Country.	1900.		1899.	
	Marks.		Marks.	
Argentine Republic.....	234,600,000	\$55,731,800	194,500,000	\$47,291,000
Brazil.....	115,500,000	27,480,000	91,000,000	21,658,000
Chile.....	89,400,000	21,277,200	93,400,000	22,229,200
Peru.....	6,900,000	1,642,200	4,100,000	975,800
Uruguay.....	15,400,000	3,665,200	13,100,000	3,117,800
Venezuela.....	9,700,000	2,308,600	9,400,000	2,237,200

Exports.

Country.	1900.		1899.	
	<i>Marks.</i>		<i>Marks.</i>	
Argentine Republic.....	64,000,000	\$15,232,000	52,300,000	\$12,447,400
Brazil.....	45,700,000	10,876,600	46,500,000	11,067,000
Chile.....	30,900,000	9,496,200	28,100,000	6,687,800
Peru.....	9,900,000	2,356,200	7,700,000	1,832,600
Uruguay.....	12,000,000	2,856,000	10,400,000	2,475,200
Venezuela.....	5,000,000	1,190,000	4,000,000	952,000

From the above table, it appears that Germany's trade with the Argentine Republic, Brazil, and Chile is already very considerable, its imports from these three Republics in 1900 being valued at \$105,000,000 and its exports thereto at \$35,000,000. Recent increases in shipping facilities between Hamburg and Bremen and South American ports will no doubt materially alter the above figures in 1901 in Germany's favor.

CEMENT IN CANADA, LATIN AMERICA, AND THE WEST INDIES.

In compliance with the request of a resident of Ohio,* a Department instruction was sent, under date of November 26, 1900, to certain consular officers in Canada, Central and South America, and the West Indies, requesting information relative to the cement trade. The answers that have been received are given below.

CANADA.

Consul-General Turner writes from Ottawa, December 28, 1900:

The total imports of Portland cement into the Dominion of Canada for the fiscal year ended June 30, 1900, were 1,312,170 cwts., and for the four months from July 1 to October 31, 1900, 832,364 cwts. This importation was divided as follows: From Great Britain, 398,265 cwts.; United States, 55,668 cwts.; Germany, 140,569 cwts.; Belgium, 233,902 cwts.; all other countries, 3,960 cwts. I am informed by the customs authorities that a large amount of the cement imported from Great Britain is of German or Belgian manufacture.

The preferential duty in favor of England is $33\frac{1}{3}$ per cent; but, notwithstanding this fact, very little strictly English cement is consumed in Canada. From all information, I should say that more Belgian cement is sold than any other.

* To whom ADVANCE SHEETS have been sent.

The wholesale price per barrel of 400 pounds is about \$2.35; the retail price, about \$3.

The largest importers are Bellhouse, Dillon & Co., of Montreal.

It is said that greater quantities of Portland cement would be purchased from the United States, were it not for the high railway rates. Foreign cement is brought entirely by vessels, and the rates are much cheaper. It can be landed in Ottawa for about one-third less than cement brought from the United States.

The long duration of winter is a great drawback to a larger consumption of Portland cement in Canada. For five or six months of each year, cement can not be used for outdoor work.

BRITISH COLUMBIA.

Under date of December 15, 1900, Consul Smith, of Victoria, says:

The imports of Portland cement into this district have increased largely during the past few years, having risen since 1897 from 1,000 barrels to 10,000 barrels. During the present year, the receipts were somewhat over the latter amount. In addition, there have been about 2,500 barrels brought here by British naval vessels, for use at the Esquimalt naval station, which do not appear in the custom-house returns. The value of the registered imports of Portland cement into this district during the year ended June 30, 1900, was \$14,718.

The cement used here is almost exclusively of English manufacture. It is brought around Cape Horn in sailing vessels as ballast at nominal rates of freight, largely by ships which have carried salmon from this port to England and would otherwise return to Victoria without cargoes. For this reason, much of the cement used in Seattle and other nearby American cities is supplied from Victoria.

The lowest price at which Portland cement has been sold here during the present year is \$3.30 per barrel of 400 pounds, in large quantities, the average being \$3.35 per barrel; in small quantities, \$3.50 to \$3.65 per barrel is the market price.

The principal importers of Portland cement in this city are R. P. Rithet & Co., Limited; Robert Ward & Co.; Hudson Bay Company; Simon Leiser & Co.; and Thomas Earle.

Shipping facilities are good. There are two daily boats from Puget Sound and a triweekly service via Port Angeles. There is also direct steamer connection with San Francisco every fifth day.

The matter of introducing Portland cement into Vancouver Island is largely one of freights, which are nearly prohibitive. The

rate from St. Paul to Victoria is 80 cents per 100 pounds, which would be \$3.20 per barrel. To this must be added the cost of transportation to St. Paul from any interior point in the United States and the Canadian duty of $12\frac{1}{2}$ cents per 100 pounds.

An American syndicate, composed largely of owners of cement works in Chicago and New York, has recently bought land in the vicinity of Sidney, on Vancouver Island, where arrangements are being made to start a large Portland-cement factory. It is said that an abundance of clay, containing the necessary properties for the manufacture of this article, has been discovered at that point. These works are expected to be in operation next year. The output at first will be 300 barrels per day, but this will be gradually increased until a maximum of 2,000 barrels per day is reached.

In view of contemplated city improvements, the use of Portland cement will, no doubt, be largely increased during the coming year. It is believed the consumption in 1901 will reach nearly 20,000 barrels.

I regret to say that until reduced freight rates are obtained, the prospect is not favorable for building up a trade in this district for cement manufactured in the United States.

NEW BRUNSWICK.

Consul Myers writes from St. John, November 30, 1900:

The amount of Portland cement imported annually at this port is about 10,000 barrels of 350 pounds each.

The wholesale price is \$1.75 to \$2.25 per barrel, duty included, and the retail price, \$2.25 to \$2.75 per barrel.

The chief importers are:

Alfred Mills, No. 11 Mill street, St. John.

Randolph & Baker, Randolph street, St. John.

J. Willard Smith, No. 6 Ward street, St. John.

John Taylor, No. 8 Nelson street, St. John.

Shipping facilities: Either by vessels from European ports and New York, Boston, or Philadelphia, or by rail from the latter cities and points on the Canadian Pacific and the Maine Central railroads.

The rate of duty is $12\frac{1}{2}$ cents per 100 pounds, weight of bag, barrel, or cask being included in the charge.

Belgium and England supply the greater part of the Portland cement used here. Cement imported in barrels finds the readiest sale. That from the United States is packed generally in sacks, and for this reason is not so favorably regarded.

ONTARIO.

Consul Sewell writes from Toronto, February 12, 1901:

For the past two years, there has been very little Portland cement imported into this part of Canada, Canadian factories having supplied the demand. There are four new factories for the manufacture of cement in course of construction in Ontario. Their product will be on the market this spring, and the result will undoubtedly be a large overproduction of this article.

There are three grades of Portland cement sold here, ranging from \$2 to \$2.60 per barrel, in carload lots. The retail price is from \$2.50 to \$3 per barrel.

MEXICO.

Consul-General Barlow writes from the city of Mexico, under date of December 18, 1900:

I give below a translation of the report of the Secretary of the Treasury, in reply to my request for statistics of imports of Portland cement:

Importation, fiscal year 1899-1900, of common lime, hydraulic lime, and Portland cement.

Country of origin.	Weight.		Value.	
	Kilograms.	Pounds.	Mexican.	U. S.
Germany	5,076,987	11,192,726	\$63,812	\$30,375
Austria	18,000	39,683	180	86
Belgium	4,156,619	9,163,682	41,476	19,743
Spain	71,783	158,253	1,355	645
United States.....	4,177,032	9,208,685	64,447	30,676
France	474,919	1,043,006	4,417	2,102
Italy	18,000	39,683	200	95
England	12,847,843	28,324,355	97,925	46,612
Total	26,841,183	59,170,073	273,812	130,324

It is not possible to determine the quantity and value of cement imported, because the Mexican customs tariff includes, in the same schedule number, common lime, hydraulic lime, and Portland cement.

The prices of Portland cement in this city are as follows: Wholesale, \$8.50 to \$9 Mexican currency (\$4.04 to \$4.28) per barrel; retail, \$10 to \$11 Mexican currency (\$4.76 to \$5.23) per barrel.

The consumption of Portland cement in the City of Mexico runs from 500 to 600 tons per month and is steadily increasing.

Shipping facilities to this city from the United States are excellent, being by the Mexican Central, Mexican International, and

Mexican National railways overland and the New York and Cuba Mail and Steamship Company, with regular weekly sailings from New York via Veracruz.

NAMES OF IMPORTERS IN THE CITY OF MEXICO.

Luis Anciaux & Co., Tarasquillo 2.
 R. Boker & Co., Pte Espiritu Santo 4.
 Belga Drogueria, Pte Espiritu Santo 8.
 Desvernine & Co., 1 Pte San Francisco 12.
 E. Dutour & Co., San Agustin 8.
 Valentin Elcoro & Co., Cadena 24.
 A. Grimwood & Co., Capuchinas 8.
 W. C. O'Brien, Cadena 17.
 José Watson, Cadena 11.
 C. B. Woods, Tacubayo.

BRITISH HONDURAS.

Under date of December 5, 1900, Consul Avery writes from Belize:

The importations of cement into this colony during 1897, 1898, and 1899 were as follows:

Year.	Total.	From United States.
1897	\$475	\$234
1898	1,268	286
1899	789	177

In 1898, there were under construction in Belize a new iron bridge, a brick post-office, and a schoolhouse, so that the demand for cement was unusually large. It is very unlikely that there will be a great call for this article until the proposed railway is begun.

Very little cement is used in the construction of buildings here, and none at all at present in public works. The houses in Belize are built, as a rule, on posts, at an elevation of about 6 feet, and generally a flooring of cement several inches in thickness is spread on the ground covered by the building.

Formerly, cement was entered free of duty, but at present the charge is $12\frac{1}{2}$ per cent.

The wholesale price is about \$3.50 per barrel and the retail \$4.

The chief importers of building materials in Belize are W. G. Aikman & Co.; John Harley; and the Belize Estate and Produce Company.

COSTA RICA.

Consul Caldwell writes from San José, January 8, 1901:

Imports of cement for 1898, 1899, and eleven months of 1900.

Country from which im- ported.	1898.		1899.		Eleven months of 1900.	
	Kilograms.	Pounds.	Kilograms.	Pounds.	Kilograms.	Pounds.
United States.....	240,500	530,206	156,520	345,064	318,630	702,452
Germany.....	139,860	308,335	265,610	585,564	208,694	460,087
France.....			1,000	2,204	10,000	22,046
Italy.....			425	937		
Spain.....					74,530	164,300
England.....					18,897	41,660
Holland.....					18,000	39,683
Belgium.....					18,000	39,683
Total.....	380,360	838,542	417,555	920,542	666,751	1,469,919

I am informed that a large part of the cement imported from the United States within the past year or so was of English or German manufacture, bought in bond in the United States and brought to Limon via New Orleans by the Limon Improvement Company. What this amounted to, I am unable to say; but I have reason to suppose the quantity of United States cement imported is much smaller than the official figures indicate.

The market here is small and can be easily overloaded. Merchants can not afford to carry large stocks. Of late, German exporters have been sending cement in iron barrels, which, perhaps, is one reason why they have secured the greater share of this trade. A quick-setting cement is demanded here; slow-setting cement does not give good results.

The Atlas Steamship Company has a line of steamers from New York to Limon, sailing each week. The United Fruit Company and the Camors-Weinberger Company run steamers from New Orleans to Limon, making weekly, and sometimes semiweekly, trips. The Pacific Mail Company's steamers sail twice a month from San Francisco for Punta Arenas, on the Pacific coast; and recently a line of German steamers extended its service to San Francisco.

Railway freights from Limon to San José (102 miles), on through bills of lading, are \$35.30 in Costa Rica money per 1,000 kilograms, or, on a barrel of 400 pounds, about \$7 Costa Rica (at present rates of exchange, about \$3.18 in American gold).

Cement retails in San José at \$22 or \$23 per barrel of 400 pounds, or about \$11.45 in United States gold. Custom-house dues are 1 cent per kilogram, to which must be added 1½ cents per kilogram wharfage and special theater tax, making 2½ cents per kilogram, or a little over 1 cent in United States gold.

The leading importers in San José are:

Rohrmoser & Co.
 Basigo & Alvarado.
 W. Steinvorth & Hermanos.
 Juan Knöhr, hijos.
 Miguel Macaya.
 André, Wahle & Co.
 Juan De Yongh.
 United Fruit Company.

GUATEMALA.

Consul-General McNally sends the following from Guatemala, January 23, 1901:

During the past year, about 4,000 100-pound barrels of cement were imported into this consular district.

The wholesale price is \$10 per barrel; the retail price, \$12.

The principal importers of Portland cement in Guatemala City are:

J. Van de Putte.
 B. Estupinian.
 Herman Laeisz.
 Koch, Hageman & Co.
 Alberto Wilhelm, Retalhuleu.
 Laeisz & Co., Retalhuleu.
 George Gebhardt, Retalhuleu.
 Groeble, Hurtes & Co., in Quezaltenango.

Cement and other goods may be sent to Guatemala via Panama or San Francisco on the Pacific side and via gulf steamers on the Atlantic.

Nearly all the cement imported into Guatemala comes from Germany, as the high freight rates from the United States make competition impossible.

SALVADOR.

Consul Jenkins writes from San Salvador, January 7, 1901, as follows:

The amount of Portland cement imported into Salvador can not be stated with accuracy, as the bureau of statistics was abolished by the present Government shortly after it came into power. I have ascertained, however, from reliable sources, that the annual importation is about 1,500 tons. The principal points of exportation are San Francisco and Hamburg; that which comes from San Francisco consists largely of cement landed under bond, manufactured chiefly

in Belgium, and varies in price from \$1.75 to \$2.50 per barrel, while that imported from Hamburg is principally German and Belgian cement. Very little, if any, of this crosses the Isthmus of Panama. Goods ordered from San Francisco reach here in thirty days from the date the order is received, while the time from Hamburg, via the Straits of Magellan, is seventy-five days. Freight rates are in favor of Hamburg.

Cement is free of all customs duties and taxes and retails at \$22.50 to \$23.50 silver (\$9.86 to \$10.29) per barrel.

Cement coming from bonded warehouses is said to be inferior to that imported from Hamburg.

I have noticed that certain brands received here are packed in iron cases; this method is preferred by dealers.

The principal importers are:

Perich, Saprissa & Cia.

Altmark & Mugdan.

Salvador Railway Company.

Berkefeld & Rohde.

Balette & Goens.

These importers have branch houses and correspondents in all parts of the Republic, with headquarters in San Salvador.

WEST INDIES.

ANTIGUA.

Consul Galbraith, of Antigua, February 6, 1901, says:

There is not a large market for Portland cement in Antigua. What is imported comes from the United Kingdom or from Barbados. There are no buildings of any importance requiring cement being erected. The only demand is from sugar plantations, and, owing to the depressed condition of this industry, cheaper materials have been substituted. The imports for 1900, which are much greater than those for many years past, are no index to the consumption of this material here, the greater portion having been imported by the Government to finish the Wallings waterworks.

The following table shows the imports of Portland cement into this colony for the past four years:

From—	1897.		1898.		1899.		1900.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	<i>Barrels.</i>		<i>Barrels.</i>		<i>Barrels.</i>		<i>Barrels.</i>	
Great Britain.....	179	\$420.00	417	\$1,500.00	248	\$850.00	187½	\$345.00
Barbados	240	800.00	85	320.00	80	320.00	1,415	3,640.00
United States.....	5	14.40	.....	.....	.....	.....	10	30.00

The wholesale price is \$1.44 per barrel of 400 pounds. The retail price is \$3.60 per barrel.

The following are the principal importers:

G. W. Bennett, Bryson & Co., Limited.

D. N. Rannie & Co.

A. J. Camacho & Co.

Manoel Gomes & Co.

A. McAdam.

The Quebec line of steamers, which runs from New York to this island every ten days, would be the cheapest way for our manufacturers to forward cement to this market. The freight would be about one-half of what it is from Europe.

Other things being equal, I see no reason why this market should not be controlled by the United States. Business houses here have been in the habit of ordering cement from their European agents, and will continue to do so until the manufacturers of the United States push the sale of their goods on this island.

BAHAMAS.

The following, dated December 20, 1900, has been received from Consul McLain, of Nassau:

The quantity of Portland cement used in the Bahamas is small, averaging probably not over 400 barrels per annum. During the year 1899, however, a much larger amount was imported for use in the construction of the new Colonial Hotel. This, of course, was a special importation.

Cement is sold here at \$4.50 per barrel, or at 8 cents per quart retail.

Importers of this article are:

The General Hardware Company.

The Ironmongery Company.

Messrs. John S. George & Co.

R. W. H. Weech.

Thad. G. Johnson.

Shipping facilities from New York are very good, there being a regular monthly service of three steamers. The freight charges are 80 cents per barrel of 400 pounds.

The duty on cement is 20 per cent ad valorem.

No Portland cement of United States manufacture worth mentioning is used here. Most of it is of German make, and is either imported direct or purchased in bond in New York. It is generally conceded that United States cement is equal in quality to the foreign, but dealers claim that the German article is cheaper; hence its control of this market.

I would suggest that our manufacturers correspond with the above-mentioned firms, and if satisfactory prices can be offered, I see no reason why our cement can not supplant the foreign article.

Any communications addressed to this consulate will receive careful consideration.

DUTCH WEST INDIES.

Consul Cheney, of Curaçao, December 21, 1900, reports:

It is impossible to obtain exact information as to how much Portland cement is used in this colony, but the amount is not large. The Dutch Government is itself the largest customer, using it in various public works. The cement is all of German origin, the Germans having displaced the English product by their lower price. English cement, however, is thought by some to be the better.

The cost of cement f. o. b. Hamburg is approximately \$1.50 per barrel of about 375 pounds. The cost here, including duty, which is 3 per cent only, is about \$2.50. It is sold at wholesale for \$2.80 per barrel and at retail for \$3.

The dealers are:

Leon V. Leyba & Co.

C. Winkel & Zonen.

Maduro, Jr. & Co.

S. E. L. Maduro & Sons.

United States products are gradually replacing those of Europe in this colony, and I think that samples sent to any of these firms may result in orders.

Shipping facilities are excellent and favor our manufactures. The Red "D" Line dispatches a steamer every Saturday, while the German boats come only once a month. The passage of the German vessels is also two or three times as long as that of the American.

I will cooperate with any United States company to the extent of my ability in trying to introduce our Portland cement here.

HAITI.

Deputy Consul Battiste sends the following from Port au Prince, December 17, 1900:

The importation of Portland cement into this island has fallen off considerably during the past few years, on account of the severe financial distress which has been weighing on the country. While some years back from 4,000 to 5,000 barrels were received annually

at this port, the importation is now only between 1,500 and 2,000 barrels.

The price paid here is \$10 (Haitian currency) per barrel.

The principal importers in this city are:

Green Knabel & Co.

E. F. Mevs.

Barbancourt & Co.

L. Mevs & Co.

R. Stark.

Georges Reigner.

Shipping facilities are good. There are three lines of steamers, one plying weekly and the other two fortnightly between New York and the different ports of this island. The freight charged on cement is 80 cents per barrel. The customs dues are 25 cents per barrel, with 50 per cent, 33 $\frac{1}{3}$ per cent, and 25 per cent surtax.

The cement imported here comes from England, France, and Germany, but principally from the latter country, via New York.

I am informed that recently an importation of United States cement was made here, and that while the quality gave no cause for complaint, fault was found in the packing. The barrels were not tight enough, and the staves were too light and not sufficiently hooped to stand the rough handling to which they were subjected in the transfer from the steamer to the lighters and from the latter to the shore. As a result, much loss was incurred.

Another drawback to the importation of United States cement is the term of credit; the German merchants grant six months, while the Americans only allow sixty days.

The marks imported are the Stettin Bredower "Eagle" brand, costing \$1.65 to \$1.70 per barrel in New York; the "Keystone" and "Blue Anchor," costing \$1.65.

Attention is being turned of late to the construction of stone buildings, and naturally cement is largely used.

MARTINIQUE.

Vice-Consul Testart writes from Martinique, January 28, 1901:

The receipts of Portland cement in 1900 were as follows:

	Barrels.
From Marseilles.....	9,380
From Bordeaux.....	50
Total.....	9,430

Wholesale prices vary from 12 to 12.50 francs (\$2.31 to \$2.41) per barrel and retail prices from 14 to 16 francs (\$2.70 to \$3.08), according to the demand and the stock on hand.

The only importers are:

G. Duplan & Co., of St. Pierre.

Caminade Brothers, St. Pierre.

Both of these firms have branch houses at Fort de France.

Frequent arrivals from Marseilles, the principal shipping port to this island, facilitate trade in this article. The freight charges are, on an average, 10 francs (\$1.93) per ton.

The cement in use is known as the "half-slow process." It is also termed "artificial cement," and is of the Romain Boyer and Thorau brands, the former being preferred.

Other grades received are: "Desmarles," "Lonquety," that from the "Société Desvoise," etc.; but these, owing to their high price in France, are imported only in small quantities:

The duty on cement is as follows:

Description.	Unit.	Duty.		Duty per barrel.*
		Centimes.	Cents.	Cents.
<i>Imports from France.</i>				
Half-slow process and ordinary kinds:				
Differential or customs duty.....	100 kilograms† gross weight.			
Municipal or octroi duty.....	do	50	9.52	17.14
Package dues.....	Barrel	15	2.85	2.85
Wharfage dues.....	do	20	3.8	3.8
Total				23.79
<i>Imports from foreign markets, irrespective of ports.</i>				
Ordinary kind:				
Differential or customs duty.....	100 kilograms gross weight.	50	9.52	17.14
Municipal or octroi duty.....	do	50	9.52	17.14
Package dues.....	Barrel	15	2.85	2.85
Wharfage dues.....	do	20	3.8	3.8
Total				40.93
Half-slow process:				
Differential or customs duty.....	100 kilograms gross weight.	75	14.28	25.71
Municipal or octroi duty.....	do	50	9.52	17.14
Package dues.....	Barrel	15	2.85	2.85
Wharfage dues.....	do	20	3.8	3.8
Total				49.5

* Of 180 kilograms (396.8 pounds).

† 220 pounds.

The imports above referred to—9,430 barrels—are unusually large, those for 1898 being 3,908 barrels and for 1899 5,935 barrels. The increase is due to the reconstruction at Fort de France of seventy-odd buildings destroyed by fire in May, 1900.

I may add that if the "half-slow-process" cement could be imported from the United States and sold at the rates mentioned herein, a trial would very probably show favorable results. I would therefore suggest a small shipment—say 10 barrels—to either of the merchants referred to.

ARGENTINE REPUBLIC.

Consul Mayer writes from Buenos Ayres, January 19, 1901:

The import of cement into this consular district from July 31, 1899, to January 1, 1900, amounted to \$92,000; from January 1, 1900, to July 31, 1900, \$100,550.

Wholesale prices are from \$1.90 to \$3 per barrel, containing from 120 to 180 kilograms (264 to 396.8 pounds). Retail prices of French cement per barrel of 120 kilograms (264 pounds), \$2.40 gold; retail prices, English cement, per barrel of 180 kilograms (396.8 pounds), \$4.15 gold.

The importers here are:

J. J. Drysdale.

Thomas Drysdale & Co.

Dellacoppa & Co.

C. Rubens & Co.

The shipping facilities are good.

There is very little United States cement in this market, as our manufacturers have no agency here. It is a waste of time to write letters, but if United States cement can be offered here and credit be given to reliable parties, there is no doubt, in my opinion, of success. The Germans, French, and English control the cement business by giving credit.

CHILE.

Consul Caples, of Valparaiso, January 9, 1901, writes:

The market prices for Portland cement, in Chilean paper money, are: Retail, \$11 per barrel; wholesale, for fifty barrels and upwards, \$9.25. On the latter price, the discounts are 8 per cent for cash on delivery, 6 per cent payable in thirty days, and net at six months. The barrels weigh, gross, from 180 to 184 kilograms (approximately 400 pounds). The net equivalent of the Chilean cash price in United States currency is \$2.89. This includes cost of cement, barrels, shipping charges, freight, insurance, landing charges, custom duties, cartage, storage, and commission or profits.

The principal importers of Alsen German cement in December, 1900, were:

Saavedra Benard & Co. (1,800 barrels from Hamburg).

Weber & Co. (1,000 barrels from Hamburg).

Electric Railroad of Santiago (1,000 barrels from Hamburg).

The principal importers of British cement were Messrs. Williamson, Balfour & Co., who have purchased great quantities of White's

Portland cement for the construction of the immense Peñuelas waterworks, built to supply Valparaiso with water. There are other importers, but on a very insignificant scale.

There is a tendency on the part of the Germans to monopolize the market in cement.

A line of German sailing vessels—the "P. Line"—runs constantly between Hamburg and Chile. The ships are very fast, making the passage in from sixty-four to seventy-four days. If a sufficient quantity of light general cargo can not be found in Hamburg to fill up, cement is put on board as ballast. In such cases, the latter is carried at nominal rates, with which American or British chartered ships could not compete.

All the cement imported into Valparaiso in the month of December was shipped from Germany, and was of German manufacture, with the exception of ten barrels, which came from Belgium. Two thousand eight hundred barrels were imported in sailing ships of the German "P. Line" and 1,000 in the steamship *Luxor*. The high freight rates ruling from New York to Valparaiso would not admit of competition with German sailing ships. If the United States manufacturers can make cement as good as the Germans or British do, can procure freights at not exceeding \$4 in United States currency per ton of 2,240 pounds from New York to Valparaiso, and can insure at the rate of \$2.50 per \$500, there will be a chance of success in the near future.

During the present month—January, 1901—the Chamber of Deputies will discuss the question of constructing an immense dock, sufficiently large to admit about one hundred vessels. Should it decide to make this improvement, as in all probability it will, with the data now furnished, our manufacturers will be in a position to tender bids for a share of the cement required.

Imports of cement into Chile in 1899.

Whence imported.	Quantity.	Value.	
	<i>Kilograms.</i>	<i>Chilean.</i>	<i>U. S.</i>
From France (Valparaiso).....	1,100	\$44	\$16
From Great Britain:			
Valparaiso	1,513,135	60,526	22,002
Iquique	189,325	7,573	2,764
Antofagasta	88,750	3,550	1,266
Taital	52,275	2,091	763
Coquimbo	225,650	9,026	3,294
Talcahuano	2,383,325	95,333	34,797
Coronel	34,100	1,340	489
Total	4,486,560	179,439	65,495

Imports of cement into Chile in 1899—Continued.

Whence Imported.	Quantity.	Value.	
	<i>Kilograms.</i>	<i>Chilean.</i>	<i>U. S.</i>
From Germany:			
Valparaiso	8,682,977	\$347,319	\$126,771
Iquique	396,000	15,840	5,782
Antofagasta.....	31,500	1,260	460
Coquimbo.....	83,050	3,334	1,217
Talcahuano.....	1,466,643	58,652	21,407
Valdivia.....	860,250	34,760	12,687
Port Montt.....	7,900	300	110
Total.....	11,536,920	461,465	168,435
From Belgium:			
Valparaiso	90,000	3,600	1,314
Antofagasta.....	15,000	600	219
Total.....	105,000	4,200	1,533
From United States (Valdivia).....	36,000	1,440	525
Grand total.....	16,165,580	646,588	236,005

The customs valuation of cement is \$4 per 100 kilograms, gross weight; an ad valorem duty of 15 per cent is paid on this valuation. Customs duties are paid in Chilean gold, the Chilean gold dollar being the equivalent of 36 cents in United States gold; consequently, the net custom duty on 100 kilograms (220 pounds) of cement is about 22 cents in United States currency.

ECUADOR.

Under date of February 16, 1901, Vice-Consul-General Reinberg, of Guayaquil, says:

The demand for Portland cement is at present very slight; the only places where it is used to any extent are for bridge work along the railroad line and in this city for repairing the water reservoirs destroyed by a landslide some two years ago. Furthermore, some of the wealthier classes employ it for paving the court yards of their houses; also, cocoa planters and exporters consume a slight quantity in making their "tendales," or floors, for drying out cocoa. The ports of Manta and Bahia de Caraquez also import small quantities.

The following table shows by countries the amounts and values of the imports into this Republic for the years of 1898 and 1899. Records of previous years were destroyed by the fires of October, 1896, and November, 1899.

Country.	1898.				1899.			
	<i>Kilos.</i>	<i>Pounds.</i>	<i>Sucres.*</i>		<i>Kilos.</i>	<i>Pounds.</i>	<i>Sucres.†</i>	
Germany.....	500,600	1,103,623	15,025	\$6,326	130,400	287,480	4,686	\$2,062
France.....	55,000	121,253	2,200	926				
Belgium.....	15,500	34,171	600	253	28,000	61,729	1,733	763
Chile.....	9,000	19,841	360	152				
United States.....	1,500	3,307	315	133	3,500	7,716	522	230
Great Britain.....	500	1,102	175	74	3,000	6,614	280	123
Total.....	583,100	1,283,297	18,675	7,864	164,900	363,539	7,221	3,178

* 1 sucre in 1898=42.1 cents.

† 1 sucre in 1899=44 cents.

From this, we see that cement from the United States is the cheapest, although in point of quantity imported it stands fifth on the list.

The weight (gross) of a barrel is 180 kilograms (396.8 pounds).

Duties here are 1 cent per kilogram (2.2046 pounds) plus 100 per cent, or 3.60 sucres (\$1.58) per barrel.

Prices are: Wholesale, 11 to 11.50 sucres (\$4.84 to \$5.06) per barrel; retail, 12.50 to 13.50 sucres (\$5.06 to \$5.50) per barrel.

The importers are:

Guillermo Kaiser.

Sucs de R. Valdez.

C. Ninci.

Vignolo.

Garcia & Ninci.

E. Rohde & Co.

Duran y Rivas.

Guayaquil and Quito Railroad Company.

SHIPPING FACILITIES.

From New York via the Isthmus, per Pacific Steam Navigation Company or Panama Railroad Company; from Panama, two lines of steamers—Pacific Steam Navigation Company and Compañía Sud-Americana de Vapores. The last-mentioned lines also ply direct between Guayaquil and San Francisco, Cal., each line running two steamers per month. Furthermore, the Kosmos (German) Line runs steamers from here to San Francisco. From New York to this place, via Straits of Magellan, there are the Merchants' Line (W. R. Grace & Co.) and the West Coast Line (Flint, Eddy & American Trading Company).

PORT FACILITIES.

There is but one wharf here—a crude affair under Government control—to which freight is brought from vessels, after unloading into lighters. About 50 tons per day per vessel is the maximum rate of discharge. This, however, is seldom attained.

If American exporters would only consult the needs of this market and the convenience of its merchants, giving reasonable credits, there is no reason why they should not build up a good trade in Portland cement.

THE GUIANAS.

Consul Moulton, of Demerara, under date of January 18, 1901, writes:

BRITISH GUIANA.

Importations of cement into British Guiana have averaged 13,658 barrels per annum for the past six years. Last year, 9,482 barrels in excess of that quantity were imported, mostly for railway improvements in the colony.

Wholesale prices are \$2.80 per barrel; retail, \$3. Cost in London, \$1.60 per barrel of 400 pounds; freight, 72 cents per barrel, plus 10 per cent primage; duty, 25 cents per barrel. Nearly all the importations come on consignment.

The chief importers are:

Booker Brothers.

McConnell & Co.

Smith Bros. & Co.

Sandbach Parker & Co.

De Jonge & Smith.

Messrs. Wieting & Richter.

Messrs. Wieting & Richter are willing to accept consignments.

The fleets of the Armstrong and the Quebec steamship lines maintain a regular ten-day service between New York and this port, via the West India Islands. An average of two chartered American sailing vessels per month come here with ice, lumber, and general cargo. The Royal Dutch Mail steamers from Amsterdam to New York, via the West Indies, make bimonthly calls, coming and going.

Consignees, dealers, and consumers in this district claim to know nothing of our cement. Its quality and price are a mystery.

If, as stated in the circular calling for this report, a high-grade cement is sold in the United States at a lower figure than in any European country, there should be little difficulty in controlling the trade of this region, as freight rates between New York and Demerara would be in our favor. The cement, however, must be equal in every respect to the English article, which consumers are accustomed to use.

DUTCH GUIANA.

Dutch Guiana imports about 2,500 barrels of cement annually. Prices are quoted at \$2.60 wholesale and \$3 retail; freight, 72 cents per steamer. There is no duty charged in that colony.

Importers at Paramaribo are:

P. A. Bruggemann & Son.

M. S. Van Praag & Co.

S. M. Swyt.

L. C. Leefmans.

Shipping facilities available are the Royal Dutch Mail steamers, making bimonthly trips between Amsterdam and New York, via Paramaribo, Demerara, and West India Islands. The Scrutton steamers are run once a month from London. Chartered American sailing vessels call at Paramaribo each month, and the Royal English Mail, from Southampton, via Demerara, every two weeks.

FRENCH GUIANA.

French Guiana probably uses about the same quantity of cement as Dutch Guiana. It comes mostly from France by the Royal French Mail steamers, which arrive at Cayenne regularly once a month. These steamers call at French West Indian colonies, Demerara, and Paramaribo. Occasionally, a chartered American sailing vessel goes there with general cargo. French cement takes longer to dry than the English article, and is not liked so well.

A. E. Lalanne is a prominent importer at Cayenne.

 PARAGUAY.

Vice-Consul Harrison writes from Asuncion, January 12, 1901:

Portland cement is imported into Paraguay by the firms of Manzoni Hermanos and Ruis y Jorba.

The yearly importation is about 3,000 barrels. Each barrel weighs 120 kilograms (264.5 pounds) gross weight.

The average price during the past year was \$2.20 gold per barrel; but the market price to-day is only \$2. Cement is not sold here in sufficient quantities to justify a wholesale price.

The freight from Buenos Ayres to Asuncion is \$2.70 gold per ton of 40 cubic feet. Freight rates from shipping ports to the River Plata republics are unknown here, as goods are not imported direct to this country, but through Buenos Ayres.

The duty levied on Portland cement is 30 cents gold on barrels of 120 kilograms (264.5 pounds).

Brands known as "Eagle" and "Bear," from Belgium, are most popular in Paraguay.

URUGUAY.

Consul Swalm, of Montevideo, January 7, 1901, reports:

Uruguay imports a considerable amount of Portland cement, its largest use being in coating or ornamenting the walls of residences and business houses. As frost does not at any time of the year interfere with its outside application, the use of cement is general and should show a steady increase with the development of the country. The annual imports for the years 1896, 1897, 1898, and 1899 amounted to 4,500,000 kilograms. The chief exporting countries are as follows:

	Kilograms.	Pounds.
Germany.....	850,000=	1,873,910
Belgium	1,200,000=	2,645,520
France	1,000,000=	2,204,600
England	1,200,000=	2,645,520
Total	4,250,000=	9,369,550

Scattering importations make up the balance, in which the United States figures to a very slight extent.

An English brand ("Elephant," Adolph Rabe, agent) has a good hold on this market, by reason of long-maintained excellence of quality.

The wholesale price of first-quality cement is \$2.60 per barrel of 100 kilograms (220.46 pounds), including a duty of 50 cents per barrel.

Dealers are:

John Shaw.

Trabucati & Co.

Adolph Rabe.

Ernesto Quincke.

Foreign cement comes as steamer freight, sold f. o. b. here. As a general rule, the rates are very low.

In conclusion, I may say that foreign cement is very firmly established in this market, and any competing article of American manufacture would meet with considerable antagonism.

PORTS OF THE ARGENTINE REPUBLIC.

The increase in the productive power of the Argentine Republic has caused the steady development of the various outlets to the countries beyond the sea.

The city of Buenos Ayres, the capital of the Republic, has been for many years the point to which gravitated all that was of value

from the interior provinces; but with the growth of production, it has been found best to forward the goods to the nearest port.

The city of Rosario receives yearly an immense amount of grain from the interior. An enlargement of the present port is demanded. Higher up the Parana River is the port of Colastene; but as it is subject to inundations, its usefulness will probably be confined to the shipment of hard-wood lumber, sleepers, and quebracho stock for the manufacture of tanning fluid.

San Nicolas, situated on the boundary of the two provinces of Buenos Ayres and Santa Fe, is a port which has never done a great deal of shipping except in connection with the river traffic. The various railways which connect it with Buenos Ayres facilitate shipments to this more important market. Buenos Ayres has an excellent system of docks, but a serious drawback is the want of water in the channels which connect them with the ocean. The channels must be constantly dredged, or the entrance to the docks would not be practicable except for steamers of comparatively light draft. The largest steamers which visit the River Plata are debarred from making use of the port of Buenos Ayres, except in certain conditions of the river. These call at La Plata (formerly called Ensenada), which is connected with Buenos Ayres by rail. Here, again, constant dredging must be done; but when cattle shipments are resumed, this port will be largely made use of, on account of its proximity to the establishments whence the cattle are sent. The next port southward is Bahia Blanca, which, as it is the terminus of the Great Southern Railway, bids fair to develop in future.

D. MAYER,
Consul.

BUENOS AYRES, *April 12, 1901.*

FINANCIAL CONDITIONS IN BAHIA.

During the past few months, the financial condition of this consular district has become so serious as to warrant a special report.

In my annual reports of 1899 and 1900,* I called attention to the financial depression existing and the causes thereof, and expressed an opinion in my last report that business would soon improve; but instead, the opening of the new century marked the commencement of the greatest financial crisis ever known in this section, and its effect will be felt for some time to come.

This is attributable to several reasons, extending over a period of two or three years. First, the long-continued drought in the agricultural regions cut short crops for home consumption and

*Commercial Relations, Vol. I, 1899 and 1900.

necessitated the importation of food stuffs from neighboring states, reducing the income of the section by diminishing the exports, which are its mainstay. Whole sections became depopulated, cattle and even people died by the wayside in search of food and water, and the State and local governments had to contribute for support of the destitute.

The second reason is the Federal Government's financial policy. In its attempt to elevate the gold value of the paper currency, it has materially decreased the paper value of the exported products; and with the lowering of the gold prices of coffee, sugar, cocoa, tobacco, etc., it often costs the producer more to gather his crop and get it to market than he can hope to receive, while his money buys little more than of old.

Thus, in 1898, the value of the milreis was 11 cents in United States money, while to-day it is worth 25 cents, more than double; but meantime food, house rent, board, clothing, etc., have not decreased 5 per cent, and in many instances the necessities of life have remained the same in milreis as they were when the milreis was worth but 11 cents and the prices had been raised to correspond with that value.

Not only has the native felt this, but the foreigner, whose mode of life is quite different, has suffered even more. As noted by the Brazilian Review of April 9, 1901, actual living expenses, exclusive of clothing, can not be reduced below 350,000 reis, or an equivalent to-day of \$87.50, per month, with ordinary shoes at \$7.50 to \$10 and clothing from \$37.50 up, and other things in proportion.

Added to all this have been the constantly increasing federal taxes, until now almost everything one purchases, including hats, shoes, jellies, pickles, hams, umbrellas, etc., has a stamp on it. It is necessary to put stamps on price cards displayed in stores, on calendars containing any advertisement, on bills posted on fences, on drafts, checks, receipts, and on documents, to say nothing of the increase in the already high tariff on imports which went into effect on January 1, 1901, raising the portion of the duties payable in gold from 15 to 25 per cent.

As the financial condition of the Union has apparently improved under these measures, so in the same ratio has the financial condition of this State and district grown worse.

Two of the three native banks shut their doors on January 29, 1901, and although much effort has been made to reopen them, their future is problematical. These two banks had a combined capital of 12,500,000,000 reis (\$3,125,000), and were of great benefit in this section, in that from them loans could be arranged and advances obtained much more advantageously than with the two foreign

banks, which devote themselves almost entirely to transactions in exchange and collections, and loan only against gilt-edge convertible security.

The banks have recently proposed a way of settling with depositors. One offers to pay 5 per cent per annum interest on the amount held, issuing a certificate for the same, and 5 per cent principal per annum. The other offers 5 per cent interest on the amount held, issuing a certificate for the same and paying nothing on principal for five years and then paying 5 per cent semiannually, "provided the bank has earned sufficient to allow it." In case these plans are adopted, the banks will reopen, and in one instance nearly enough signatures have been received to permit this, the depositors preferring this method to forced liquidation, which would yield very little.

It was thought that the only remaining native bank, one of the oldest in Brazil and having a capital of 6,000,000,000 reis (\$1,500,000), would stand the strain, especially as the people had such unlimited confidence in its president and directory. In January, at the time of the failure of the other banks, the State came to the aid of the one remaining by borrowing from the Federal Government 1,500,000,000 reis (\$375,000), hypothecating its export duty for the same, and paying the amount in the bank to satisfy the State's indebtedness. But it, too, closed its doors on April 11, 1901. It is thought that this bank will be able to resume shortly, as satisfactory arrangements are being made.

As a great number, if not all, of the merchants, both importers and exporters, are either directly or indirectly concerned in these failures, it can not but have a most serious effect upon all financial operations, and it behooves our merchants to make inquiry as to the present condition of their customers here before entering into any extensive business.

H. W. FURNISS,

BAHIA, April 19, 1901.

Consul.

HOP RAISING IN BRAZIL.

The raising of hops in the State of Sao Paulo has frequently been discussed, but, so far, only a few experiments in the cultivation of this valuable plant have been made. The quantity of hops used in the manufacture of beer here is unknown, but the yearly consumption of the Campanhia Antartica, probably the largest brewery in this district, approximates 12,000 kilograms (26,455 pounds). The price varies from 11,000 to 12,000 reis (\$1.76 to \$1.92) per kilogram (2.2 pounds). In 1898, 27,000 kilograms (59,524 pounds) of

hops were imported via Santos, and had prices been lower the consumption would have been much greater. I am informed that a coffee planter in the western part of the State has imported some hop cuttings from Europe. These plants have taken root in the red earth, so productive in coffee, and have yielded an abundant flowering. It remains to be seen whether the blossoms are of sufficient strength to be used in brewing beer. From a chemical examination of a sample of hops grown in this section, however, it is evident that the plant will do well in Sao Paulo.

The custom tax at the present time is 300 reis (4.8 cents) per kilogram (2.2 pounds), 25 per cent of which has to be paid in gold.

I am convinced it would pay anyone thoroughly conversant with the cultivation of hops to start the industry in this country. The consumption of beer in Brazil is increasing daily. Brazilians formerly drank *caninha*, an extract of sugar cane similar to rum, but of a different color. There are in this State several breweries, the majority of which are managed by Germans. Owing to the excessive import duty, the manufacture of beer has virtually become a necessity. For the same reason, United States beer, not entirely unknown in this section, is prohibited.

JOHN J. GIRIMONDI,

SANTOS, *April 6, 1901.*

Consul.

DEMAND FOR ARTESIAN WELLS IN VENEZUELA.

I give below extracts from an executive decree, issued May 4, 1901, relative to the boring of artesian wells in Venezuela. Venezuela is frequently without rain for long periods, and certain localities suffer severely from drought; consequently, the question of irrigation is a very serious one, and I believe that any enterprising concern, with sufficient capital to put into operation not only the wells mentioned in the decree, but others on the large cacao and coffee plantations, could do a profitable business.

The decree authorizes national or foreign companies to make scientific observations, with a view to boring artesian wells, such observations to be made by specialists in geology and engineering. A part of the expense incurred by these investigations will be borne by the Federal Executive, in a proportion to be agreed upon. The Federal Executive will purchase the wells constructed by his authority, for an amount previously stipulated. The volume of water flowing from each, however, must not be less than 500,000 liters (132,000 gallons) per twenty-four hours. All the work of boring, installation, etc., will be done at the risk of the constructor; and the Federal Executive will purchase only those wells which fulfill the

requirements in regard to the flow of water. No national import duty will be charged on any necessary material; and the Federal Executive binds himself to obtain from the different States and municipalities a similar exemption. The places at present most urgently in need of water are the islands of Margarita, Coche, Los Roques, and Providencia; the peninsula of Araya, the State of Falcon, the city of Maracaibo and surroundings, and the prairies of the Guanaca.

LOUIS GOLDSCHMIDT,

LA GUAYRA, May 6, 1901.

Consul.

RAILWAY CONTRACT IN GUATEMALA.

I transmit herewith translation of a contract between the Government of Guatemala and the Guatemala Central Railroad Company, approved by Congress on April 29, 1901,* for the extension of the Patulul branch from Los Cocaes (Patulul) to Mazatenango.

The Guatemala Central Railroad (Gen. Thomas H. Hubbard, of New York, president) has now in operation 129 miles of road in this Republic, the main line of 75 miles connecting Guatemala City with San José de Guatemala, an important port on the Pacific, and a branch line of 33 miles from Santa Maria to Patulul. There are 5 miles of suburban road and 16 miles used exclusively for wood, timber, ballast, etc.

The contract referred to is for the construction of 34 miles of new line from Patulul to Mazatenango, at which point connection will be had with the Occidental Railroad, thus placing the capital in direct communication by rail with the north and west provinces of the Republic. Work on this new line will commence immediately and be completed within two years. Much time must be lost in construction every year because of some five months of heavy rains, which completely inundate the lowlands. The concession will last fifteen years.

With the completion of the Northern Railroad from Puerto Barrios, on the Atlantic, to Guatemala City, there will be a perfect railroad system throughout the Republic, all lines of uniform gauge of 3 feet. The Northern Railroad has now in operation 134 miles from Puerto Barrios to El Rancho, leaving 62 miles yet to be built, the work upon which is progressing rapidly.

All of these enterprises, I may add, are being pushed and controlled by American capital.

W. G. HUNTER, JR.,

Vice and Deputy Consul-General.

GUATEMALA, May 18, 1901.

* Filed for reference in the Bureau of Foreign Commerce.

RAILWAY CONCESSIONS IN NICARAGUA.

Consul Donaldson reports from Managua, May 4, 1901, that the Government has granted a concession to Mr. H. C. Emery, of Chelsea, Mass., who already holds valuable timber concessions in the country, to build a railroad from Matagalpa to the head of navigation in Rio Grande—about 100 miles of road. Mr. Emery is allowed one year after ratification by Congress to organize his company and one year and a half more to make the necessary surveys, and must have the road finished and ready to open to the public five years after above date. He is also granted rights and exemptions for all colonists brought in for twenty-five years. He is also to receive a concession of public lands in alternate lots along the line, 1 mile wide and 4 miles deep; and rights of navigation on the Rio Grande and the Atlantic coast.

Under date of May 5, 1901, the consul notes that the Government has commissioned Mr. R. Wieser, former representative of the Maritime Canal Company of Nicaragua, in Managua, to organize a company to build a railroad from Monkey Point, on the Caribbean Sea, to San Ubaldo, on Lake Nicaragua. He is also commissioned to sell the Government railroad and steamboats now in operation, and to make a loan of \$2,000,000 for the Government, to be guaranteed by the custom-house receipts.

NEW RAILWAYS IN BRITISH COLUMBIA.

Consul Smith writes from Victoria, May 16, 1901, that the legislature of British Columbia has authorized a loan of \$5,000,000, half a million of which is to be used in building a bridge across the Frazer River at New Westminster, and the remainder to be granted as a bonus at the rate of \$4,000 a mile, for the following roads:

From the coast near Point Roberts to Midway, Boundary Creek district, about 330 miles.

From the present terminus of the Esquimalt and Nanaimo Railway to the northern end of Vancouver Island, 240 miles.

From Rock Creek to Vernon, to connect with the Shuswap and Okanagan Railway, 125 miles.

From Kitimaat, on the coast, to Hazelton, 100 miles.

From Fort Steele to Golden, 150 miles.

Work must be begun before July, 1902. The subsidy is not to

be granted until the roads are wholly completed; the companies are to pay interest on the subsidy granted at the rate of 2 per cent for the first five years and 3 per cent afterwards. The government is to control passenger and freight rates, and may acquire the roads in twenty years.

BRITISH PACIFIC CABLE.

A surveying party has located the landing site of the British Pacific telegraph cable (which is to connect the Dominion of Canada with the Australian Confederation) on Kelp Bay, near Banfield Creek, 7 miles from the entrance to Barclay Sound, and something over 100 miles from Victoria.

The location is described as admirably adapted for the purpose—a good harbor, 12 fathoms of water close to the shore, so that vessels of 10,000 tons can find safe anchorage. The harbor is landlocked, and has a bottom of ooze that it is said will furnish good protection for the wire.

Work has already begun in England on the cable. It is to be 5,834.5 miles in length, the longest yet constructed, and will be transported and laid in one ship, which is now being specially built for the purpose. The cable will run from Vancouver Island to Fanning Island, a distance of 3,337 miles, before a landing is effected; thence to the Fiji Islands, thence to Norfolk Island, and thence to Queensland.

The first installment of cable, including the sections from Queensland to Norfolk, Fiji, and Fanning islands, is expected to leave England in January, 1902. The second and longest portion is to leave in August, 1902, come direct to Vancouver Island, and be laid from Barclay Sound to Fanning Island.

According to the contract, the whole cable is to be laid and working by January 1, 1903. Unforeseen disaster excepted, those engaged in the work believe this great enterprise, which will cost \$10,000,000, will be completed at the date promised.

ABRAHAM E. SMITH,

VICTORIA, *May 9, 1901.*

Consul.

EXPORTS FROM BOLIVIA.

Consul Greene writes from Antofagasta, April 13, 1901:

I transmit herewith statement of Bolivian products brought to this port in the year 1900. The major part of these is sent to Europe. To the United States, silver and copper ores, argentiferous lead, copper regulus, and some goat and chinchilla skins are shipped.

Very little alpaca wool comes here, Arica, Chile, and Mollendo, Peru, being ports of export for this article. Messrs. M. Guggenheim's Sons buy silver and copper ores in large quantities for their smelter here and also for shipment to the United States. In return, they receive heavy shipments of American coal and coke.

Bolivian products brought into Antofagasta, Chile, by the Antofagasta and Bolivia Railway in 1900.

Article.	Quantity.	Article.	Quantity.
	<i>Met. tons.*</i>		<i>Met. tons.*</i>
Sulphur.....	0.006	Slag (silver).....	5,500
Pepper.....	0.182	Cattle (219 head).....	100
Antimony.....	1,088	Gum.....	1
Bar (pig) silver.....	0.212	Wool.....	3
Barrillas, tin.....	10,080	Matteo (royal sage).....	2
Bar (pig) tin.....	1,591	Peanuts.....	0.000
Bar (pig) copper.....	0.868	Lead ores.....	308
Smalls copper.....	87	Silver ore in bulk and bags †.....	36,718
Bismuth.....	85	Silver for smelting on spot ‡.....	37,724
Brossa (smalls) of copper.....	521	Ores:	
Borate of lime.....	4,580	Zinc.....	100
Smalls of tin.....	206	Copper.....	178
Coca.....	34	Tin.....	110
Coffee.....	27	Copper and silver.....	38
Cacao.....	0.068	Lead.....	0.142
Vicuña quilts.....	0.946	Mixed (broken).....	301
Hides.....	288	Silver and lead.....	153
Skins:		Silver and tin.....	11
Goat.....	39	Silver tiles.....	2
Chinchilla.....	0.734	Vicuña skins.....	0.234
Sheep.....	0.179	Hay.....	0.43
Barley.....	0.1	Woolen ponchos.....	0.2
Chocolate.....	0.413	Peruvian bark.....	50
Arrowroot.....	0.701	Sulphates of silver.....	64
Old silver plate.....	0.236		

* Of 2,204.6 pounds. † For exportation. ‡ To be smelted in Antofagasta (Playa Blanca).

AFFAIRS IN SOUTH AFRICA.

LEATHER.

I would call attention to the demand here for leather—sole, harness, and boot and shoe. Last November the importation of leather, particularly sole, was assuming some proportions, but exports from the United States have been stopped, the reason, I presume, being an advance in prices at home. Such action injures our manufacturers in the eyes of foreign trade. They are always ready to export when the home demand is small, but as soon as prices are enhanced the foreign market is forgotten until it is again needed to dispose of surplus stock.

If any manufacturers of leather are ready to export, this consulate can put them in the way of business. One firm here buys

\$15,000 worth per month. The Australian leather is in the market, but that of the United States has proved itself good in all the word conveys, and not one instance of fault has been found.

RHODESIA AND THE CUSTOMS UNION.

The administration of Rhodesia announces that the agreement with Cape Colony in regard to the collection of custom duties on imported goods is terminated. The duty on goods imported through the British colonies, which has heretofore been collected at the seaports, will now be collected in Rhodesia, thus breaking the customs union that has existed between the British colonies, the Orange Free State, and Rhodesia.

TRANSPORTATION.

I notice that some steps are being taken in the United States toward the adoption of through rates to South Africa, following the example set by Germany. Every step that can be taken to foster trade with this country should be taken.

The shipping combination has now decided to send one ship from New York to each port in South Africa. Instead of loading a ship for all South African ports as now, it is to be loaded for one port only. This delays shipments from New York, as much time must elapse before sufficient goods can accumulate to load a ship for one place. I understand that several ships are now on the stocks in England for the United States and South African trade.

THE COMING BOOM.

This is not recognized by all, and I may be considered too optimistic, but pessimists do not recognize that losses by war must be replaced; and these losses cover almost everything that enters into life—the implements with which to till the soil; the habiliments of mankind; the household necessities, and even luxuries; the beasts of food and burden; the stocks of goods of the merchant, now depleted or destroyed; vehicles for at least farm and freight use; machinery of all kinds for the farm and the mine; apparatus for lighting cities and houses; equipment of railways and cold-storage plants; telephones, telegraphs, bridges; structural iron of all kinds, including pipes and tubes; water installations for cities; builders' hardware, etc. The land of South Africa is adapted to the production of sugar and fruit, of cotton, coffee, and tobacco, and capital will enter to develop these industries. Large additions to the machinery and plants of the gold and diamond mines will be found necessary, and recent orders from America, amounting to \$5,000,000, emphasize the efficiency of our mining machinery. English colonists, loyal though they may be, must buy where they can get the best goods for the least money and at the earliest delivery.

As to the gold mines, by which South Africa has largely been supported, they will multiply in number. I quote from the British and South African Export Gazette:

According to Mr. Robinson, a satisfactory settlement transmuted into the tangible effects of trade will give results as follows: The 200 mines which will come into operation when the burdens that have oppressed them in the past are removed will yield, at the rate of 4,000 ounces of gold per mine per month, a monthly output of 800,000 ounces of raw gold, equal to £36,000,000 (\$175,194,000) per year. Out of this £36,000,000, there would at least be £30,000,000 (\$145,995,000) circulated in the country in the way of wages, paid away for material and the other requirements in connection with the mining industry. The benefit of this to the trade of the Empire at large would be incalculable. It would create a trade equal to £100,000,000 (\$486,650,000) a year, under the beneficent influence of which industries would flourish, the cultivation and exploitation of the country would proceed, and further mining enterprises would be developed. The attraction of fresh capital would repeat these operations in an ever-widening circle. Thus far Mr. Robinson; and though his words may appear poetical, we do not think that he has strayed beyond the bounds of prosaic fact.

THE WAR.

Although the war drags its slow length along, business has been fairly good in the British colonies, and the imports from the United States have not fallen off in value. Several lines of goods not needed in war times have decreased, but the products that serve to equip large armies and to feed a nonworking population have swelled the volume of our exports, and I believe the year ending June, 1901, will show a considerable increase in our trade over that of 1900.

PLAGUE.

The plague is adding to the difficulties of the situation, and while the daily average of cases is about ten, yet if it is not eradicated during the warm weather now prevailing, the rainy season, which comes in another month, may be expected to increase the number of cases. The exodus from the city is considerable, and outward-bound ships are crowded.

J. G. STOWE,
Consul-General.

CAPE TOWN, *April 17, 1901.*

NEW FOOD PLANT IN AFRICA.

German papers speak of an annual plant growing in tropical Africa, belonging to the leguminous class, which is largely cultivated by the negroes as a food article. It has also been introduced to some extent in southern Asia and in Brazil. It is called woandsu by the African negroes; the botanical name is *Glycine subterranca*.

The French expert chemist of aliments has recently analyzed the

fruit of the woandsu with reference to its chemical composition and its value as food. The fruit, like the peanut, matures under ground. The eatable kernel has the shape of an egg, and is dark red, with black stripes and a white hilum, like most beans. It furnishes a very white flour, whose flavor after cooking much resembles that of chestnuts. The chemical composition is 58 per cent of starchy substance, 19 per cent nitrogenous, 10 per cent water, 6 per cent oily, 4 per cent cellulose substance, and 3 per cent ashes. It will be seen that 2 pounds of these beans would supply the daily requirements of the human system.

M. Balland, who has had wide experience in the chemistry of nutriments, calls this fruit the first one found by him in a natural state which shows all the chemical properties of a perfect nutriment.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *May 22, 1901.*

NOTES.

United States Trade with Ecuador.—Minister Sampson, of Quito, under date of April 26, 1901, transmits the following official statistics of the trade between the United States and Ecuador for 1898 and 1900. The custom-house records of 1899, in Guayaquil, were destroyed by fire.

Description.	1898.		1900.	
	<i>Pesos.*</i>		<i>Pesos.*</i>	
Importations.....	2,599,943	\$1,094,576	3,426,650	\$1,500,873
Exportations.....	2,393,440	1,074,655	3,243,150	1,420,500

* The silver peso of Ecuador was valued by the United States mint at 43.4 cents for 1898 and at 43.8 cents for 1900.

The importations into Ecuador consisted of flour, kerosene, hardware, lumber, lard, steel rails, machinery, and textiles. The exportations to the United States consisted of cacao, coffee, rubber, hides, hats, and ivory nuts. For a number of years, says the minister, the trade between Ecuador and the United States has been increasing; from present indications, the year 1901 will not be an exception. The balance of trade is in favor of the United States, being \$19,921 in 1898 and \$80,373 in 1900.

Foreign Commerce of Chile, 1900.—The secretary of legation at Santiago, Mr. Lenderink, sends under date of April 29, 1901, a copy of the statistics of the foreign commerce of Chile for the years 1899 and 1900. This report shows that during the year 1900 the exportations exceeded the importations by 39,136,493 pesos (\$14,284,820), an increase of 4,568,502 pesos (\$1,667,503) over 1899. It further shows that there was an increase of 13,988,603 pesos (\$5,105,840) in the exportation of mineral products, and a decrease of 9,189,889 pesos (\$3,354,309) in the exportation of agricultural products in 1900, as compared with 1899. The wheat crop of 1900 was a partial failure, and the decrease in the exportation of that cereal alone was 3,637,139 pesos (\$1,337,556)—in fact, instead of being an exporter of wheat, Chile has imported several cargoes from the United States and Australia during the present year.

French-Canadian Steamship Line.—Under date of May 29, 1901, Consul-General Turner, of Ottawa, informs the Department that the Canadian Government has signed a contract with the Franco-Canadian Steamship Company for the establishment by the latter of a steamship service between Dominion and French ports. The contract is to run for a year from the 1st of July, 1901. In summer, fortnightly trips will be made from Montreal and Quebec, and in winter monthly trips from St. John and Halifax. The contract is based upon a tonnage rate per voyage; and on an estimate of eighteen trips, the company would earn \$50,000 the first year.

The consul-general adds that as there is a subsidy of \$100,000 available, there is some talk of the company increasing the number of steamers, so as to give a weekly service during the summer.

American Products Abroad.—Consul Marshal Halstead writes from Birmingham, May 29, 1901:

American manufacturers and merchants frequently open correspondence with United States consuls with the sentence, "Being desirous of taking advantage of the rapidly growing demand for American products," etc. There is for American goods no foreign demand of the shake-the-tree kind these inquirers have in mind. The sales of our goods of all kinds are based on the merits and low prices of the articles, after energetic salesmen have made active demonstration of good points. I can not understand the mental attitude of those American manufacturers who employ traveling salesmen to get trade in America, paying good salaries and allowing liberal sums for traveling expenses, yet wish to do business by correspondence in foreign countries. Why do they imagine they can trade successfully in Great Britain, Germany, or any other European country without employing their own travelers, when the necessity of having them is the first principle of their home business?

Demand for Blood Oranges in Germany.—Consul Hughes reports from Coburg, April 26, 1901, as follows:

There is a great demand in Germany for the so-called "Italian blood orange." The popular idea here is that this fruit is colored, not by nature, but by injections of some artificial vegetable dye. To discover the truth or fallacy of this belief, several well-known German chemists have been experimenting, first, to find out from the blood orange itself if its color is due to artificial means, and, secondly, to change the common Italian orange into a blood orange

by injections of different kinds of coloring matter. The experiments, however, have not been attended with success. It was found that no single injection of any solution would color more than one part of the orange, and that if several injections were made, the fruit was likely to decompose very quickly. The theory was then advanced that the coloring was produced by watering the roots of the trees with a blood-red vegetable solution. It is needless to say this experiment was as barren of results as the first.

Carriages in the Netherlands.—Consul Hill writes from Amsterdam, May 31, 1901:

There is but one firm at Amsterdam dealing in American carriages at present, and even this one will probably give up the business soon, as the article does not sell well here. The reasons given are that American carriages are so constructed that they can scarcely turn in the narrow Amsterdam streets, and are not strong enough to be used on Dutch roads. It is also claimed that American wood is unable to stand the wet climate, and can not be readily procured here—hence repairs cause much trouble. Carriages are also too cheap to be trusted by Dutch buyers, prices ranging here from 450 to 2,800 florins (\$180 to \$1,120). Some are sold to the Dutch East Indies, but the demand is not regular. American manufacturers, in order to secure a place in this market, should copy Dutch models. The duty is 5 per cent ad valorem.

New Methods of Packing Butter for Shipment.—Consul Hughes, of Coburg, under date of April 26, 1901, sends the following description of a new method of packing butter for long shipments:

A light wooden case or box is lined thoroughly at the bottom and sides with a layer of plaster of paris one-fourth of an inch thick, on which common glass slabs, with their edges fastened together by gummed paper, so as to make a perfect-fitting box, are placed. In this box the butter is placed, packed in good waterproof paper, in 10-pound packages. The glass top is then put on and sealed carefully with gummed paper bands, so as to make the box air-tight. A one-fourth-inch layer of plaster of paris is then put over this and the wooden cover nailed on. Each of the cases is made to contain about 200 pounds of butter. The plaster of paris being a non-conductor, very little heat reaches the butter, which arrives at its destination in good condition. The consul is informed that very successful results have been obtained by shipping butter packed in this manner from Melbourne to Kimberley—rather a severe test.

Amsterdam Congress of Criminal Anthropology.—The Department has received a note from the minister of the Netherlands, dated Washington, May 22, 1901, stating that the Fifth International Congress of Criminal Anthropology will be held in Amsterdam from the 9th to the 14th of September, 1901. Circulars regarding the congress have been received for distribution to such scientific institutions or persons as may be interested.

The principal questions to be discussed are: First, anatomical and physiological character of criminals, descriptive studies; second, criminal psychology and psychopathology, criminals and lunatics, theoretical considerations, and practical measures; third, criminal anthropology in its legal and administrative application, principles to be followed, preventive measures, protective measures, penalties; fourth, criminal sociology, economic causes of crime, criminality and socialism; fifth, criminal anthropology and ethnology compared.

Special questions, such as alcoholism, sexuality, juvenile criminality, senile criminality, hypnotism, criminal psychology in literature, etc., will also be considered.

Exposition of Fisheries at St. Petersburg.—Consul-General Guenther sends the following from Frankfort, May 8, 1901:

The Imperial Russian Association of Fisheries will hold an international exposition in February and March, 1902, at St. Petersburg, for the purpose of showing the condition of the fresh and salt water fisheries of the world. The expense of the exposition will be defrayed by the association, the Crown, the municipal government, private contributions, and by charges for exhibition space and for the admission of visitors. Premiums will be awarded in the form of gold, silver, and bronze medals, diplomas of honor, and money prizes. The exposition will have nine departments, as follows: (1) Fisheries in general; (2) salt and fresh water fisheries; (3) implements used in the fisheries industry; (4) products of the fisheries; (5) manner and means for preserving fish; (6) arrangement of fish hatcheries; (7) fishing sport; (8) aquariums and their inmates; (9) scientific researches concerning the lives of fishes, etc.

Commercial School at Cologne.—The Department has received from Consul Barnes, of Cologne, and from Consul Monaghan, of Chemnitz, under date of May 22, 1901, and May 8, 1901, respectively, reports in regard to the new commercial high school at Cologne.* The studies comprise science of commerce, knowledge of

* See ADVANCE SHEETS No. 1046 (May 25, 1901). The full text of Consul Barnes' report has been sent to the Bureau of Education.

wares, chemical and mechanical technology, commercial arithmetic, bookkeeping, and correspondence and exercises in foreign languages. The order of study is:

First term.—General political economy, commercial geography of the countries outside of Europe, civil law, and colonial politics.

Second term.—Commercial history up to 1800, civil law; tariff and transportation.

Third term.—Agrarian and trade politics, commercial geography of Europe (including statistics); commercial, exchange, and maritime law; trade and social legislation.

Fourth term.—Finances, commercial history of the nineteenth century, international private law, State and Government law, banking, exchange, money, and credit.

School for Railroad Employees in Germany.—Consul Hughes, of Coburg, May 1, 1901, says that a preparatory school for railroad employees in the Bavarian State Railroad service is being established at Munich. Attendance at this school for at least one term will be obligatory on all who wish to engage in railroad work. For those candidates who have successfully passed the one-year army volunteer examination, and who wish to compete for the higher executive and mechanical branches in the railroad service, two months' practical experience in railroading will be allowed before taking the course in the school, in order that they may be better able to understand the theoretical teaching which they will afterwards receive. The candidates are to be allowed partial pay for the time they are attending the school; this also includes the telegraphic course.

Coal Market in Sweden.—Consul Bergh writes from Gothenburg, May 4, 1901:

The Swedes are not at all pleased with the English export duty on coal. As Sweden yearly imports about 3,220,000 tons of coal at a value of about \$17,152,000, the export duty will cause Sweden an extra expenditure of about \$776,664 per year, of which the city of Gothenburg alone will have to contribute about \$164,895. The press and the public here are turning their attention more and more to the United States as a coal-producing country, and if the Americans avail themselves of the present sentiment a permanent market for American coal might be established here. But it is necessary in some way to reduce the high costs of transportation; a direct steamship line between this port and the United States would be beneficial for the American export in general. Our coal is well liked here, and American hard coal is considered superior to the English product.

Demand for Milk Vessels in Siberia.—Consul-General Guenther, of Frankfort, May 7, 1901, says that according to the St. Petersburg Gazette, the production of butter in Siberia has increased during the past few years to a very marked degree. In the vicinity of Barnaul, for instance, there are at present three hundred creameries, against two in 1896. The demand for milk vessels has consequently assumed large proportions. A factory for the production of these articles has lately been established at Kurgan, but, as it can not even approximately supply the demand, the greater part has to be procured from Moscow. The consul-general suggests that West Siberia might afford a good market for United States manufacturers of milk vessels.

Opening for Bags in Hungary.—Deputy Consul-General Hanauer reports from Frankfort, June 1, 1901:

Hungary, which has a flourishing milling industry, would now be a good market for flour bags and sacks, as the Austrian jute spinning and weaving trust has raised the price of these articles, so that, in spite of the import duty on the foreign bags, 1,200,000 sacks have come in from Germany. Agricultural associations exist in all districts in Hungary, and purchase sacks, implements, etc., for their members. These associations have a central representation at Budapest, called the "Landesagricultur-Verein." Offers should also be made to the Ungarische Mühlenverband, Bálványutca 2, Budapest, and to the Hauptstädtische Mühlenverband, Eryébettér 19, Budapest, Hungary. The two last named are millers' associations.

Austrian Fishery Exhibition.—Under date of May 1, 1901, Consul Hughes, of Coburg, writes as follows:

I have just learned that the Austrian Fishery Association will hold a large international fishery exhibition at Vienna during the latter part of September, 1902, a large subsidy for this purpose having been granted by the Imperial Austrian Department of Agriculture. A special effort will be made to have as the principal figure of this exhibition a complete representation of the Austrian portion of the Adriatic Sea, the products of its fisheries, etc. In my opinion, this would be an excellent opportunity for United States houses interested in the fishing industry and in the manufacture of fish-taking apparatus to exhibit their goods.

Credit of Roumanian Business Houses.—Consul Monaghan, of Chemnitz, May 18, 1901, informs the Department that the Royal Roumanian Ministry has recently issued the following statement:

As it often happens that business men desiring information as to the credit, etc., of Roumanian business houses apply to persons who are not in a position to give correct data of this kind, the ministry has given orders to the ten Roumanian chambers of commerce to furnish to foreign as well as inland inquirers the most conscientious and exhaustive information as to the credit and business importance of Roumanian firms. This is to be given free of charge, and either in the German or French language. The Royal Roumanian Ministry wishes persons interested to take note of the above instructions, and to seek information only from the chambers of commerce. Inquiries should be sent to the chamber of commerce nearest the place of business of the firm concerning which information is sought. The ten Roumanian chambers of commerce are Bucharest, Braila, Botosani, Craiova, Kustenji, Focsani, Galatz, Jassy, Pitesci, and Ploesci.

Oriental-Carpet Trade.—Consul Hughes reports from Coburg, May 24, 1901:

The preference shown by Europeans and Americans for oriental carpets increases each year. For three or four years, the prices have risen 25 to 30 per cent, and for certain kinds even 50 to 60 per cent. This rise is not due so much to the increasing demand as to the fact that the old carpets are becoming more scarce, and, as those of modern manufacture are very imperfect, they will not be replaced by new ones equally as good. Of the modern carpets, only the large ones from Asia Minor (Smyrna), the Persian (particularly the Kir-mans), some from Afghanistan, and the small but carefully worked Merws are very much sought. The small ones from Caucausia and central Asia do not meet with particular favor. The time is not far distant when the old carpets will all be bought up, and it would be advisable for some wealthy collector to obtain samples of the still existing old carpets and place them in one of our well-known museums.

Quinine Sale at Batavia.—Consul Rairden reports from Batavia, under date of April 15, 1901:

The tenth public auction sale of quinine was held at the Merchant's Exchange, in this city, on the 3d instant, and the following were the prices realized:

First. Editio II and III, consisting of six lots, packing at purchaser's option: Sold at 22.25 florins (\$8.94) and 22.70 florins (\$9.12) per kilogram (2.2046 pounds).

Second. Editio II, consisting of twenty-four lots, packing and weight at purchaser's option, each lot to weigh not more than 25 kilograms and not less than 22.68 kilograms: Sold at 22.25 florins (\$8.94) and 22.70 florins (\$9.12) per kilogram.

Third. Editio II, consisting of 105 lots of 22.68 kilograms per lot (total, 2,381.40 kilograms=5,251 pounds): Sold at 22.55 florins (\$9.07) and 23.55 florins (\$9.47) per kilogram. The average price realized for these lots—22.72 florins (\$9.13) per kilogram—equals the unit price of 0.0901 florin (3.6 cents) for the bark at Amsterdam.

The sale has been considered very satisfactory, as good prices were realized and the full amount put up was sold above the limit.

Tolls in Persia.—Consul-General Bowen sends from Teheran, April 18, 1901, copy of a Persian law, dated April 8, 1901, according to which all interior customs, road tolls, taxes on weighing merchandise on arrival at the markets, caravanseries, or public thoroughfares, and all charges of any name or denomination, which up to the present time have formed part of the revenue of the customs department, are totally abolished. All imports and exports in transit in the interior, it is further decreed, "shall not at any point or place, or under any name or specification, pay toll or tax, except at the frontiers or seaports, where a duty of 5 per cent, calculated on the bona fide valuation of the goods, with an addition of 1 kran and 2 shahis (11 cents) is to be levied on each (animal) load of 40 mans (260 pounds) weight, to be paid by the carrier."

Financial Conditions in Japan.—Consul-General Bellows sends from Yokohama, May 3, 1901, a clipping from the editorial columns of the Japan Daily Mail, as follows:

Japanese public opinion is gradually turning toward a foreign loan. Even in quarters where this expedient has not hitherto been approved, it is now very strongly recommended. Unhappily, the time is very ill suited for an appeal to the money markets of Europe or America, not only because the floating capital of Europe has of late been subjected to a heavy drain, but also because Japan's credit is not good at present. Whether it be her misfortune or her fault, Japan never comes upon the world's financial stage in any character save that of an impecunious state. It is to her momentary embarrassments that the attention of the foreign public is constantly drawn; not to her resources or her opportunities. Her unique difficulty at present is that her large surplus of revenue does not suffice to meet her extraordinary outlays on account of productive enterprises, and that she can not obtain loans from her own people, who find that all their available money may be employed much more profitably than in lending it to the Government. There is

no question of real impecuniosity. The whole problem is to find the means of utilizing wealth-earning opportunities. No western country would hesitate to appeal to foreign capital under such circumstances, and if Japan were a western state she, too, would not hesitate.

Railroads in Palestine.—Consul Winter, writing from Anna-berg, April 30, 1901, quotes from a report of the German consul in Damascus, as follows:

The railroad between Beirut and Damascus is sufficient for the traffic between the different towns along the route. Considering the heavy indebtedness of the road, together with the fact that the company must add nearly \$100,000 each year to the running expenses, it is a question if it will be long lived or not. If the company is compelled to liquidate, a good opportunity is presented to German enterprise. Work on the Haifa-Hauran-Damascus Railroad has been stopped, and it does not look as if the present promoters would complete it.

Railroads in Africa.—Consul Hughes writes from Coburg, April 27, 1901:

According to German reports, railways are distributed over Africa as follows:

Districts.	Length.	
	<i>Kilometers.</i>	<i>Miles.</i>
In Algeria, Tunis, French Sudan, Somaliland.....	5,518	3,428.8
British East, South, and Central Africa, the Gold Coast, and Lagos.....	5,442	3,381.6
Egypt.....	3,358	2,086.6
Transvaal.....	1,935	1,202.4
Natal.....	1,185	736
Orange Colony.....	960	597.5
Angola and Mozambique.....	943	585.9
Kongo Free State.....	444	275.0
German East and West Africa.....	300	186.4
Erythrea.....	27	16.7

Engines in Egypt.—Consul Hughes sends the following from Coburg, May 15, 1901:

It is stated that a public competition has been opened in Upper Egypt for the delivery of four vertical compound high-pressure engines to work centrifugal pumps for irrigation purposes. The contract will also include the delivery of six steam boilers, to be connected with the engines. All must be delivered at Esta, on the Upper Egyptian Railway. The plans may be examined at the bureau of the inspector-general of the irrigating system for Upper Egypt, at Cairo, and all offers must be submitted to him by June 25, 1901.

White Population in the Kongo Free State.—Under date of May 17, 1901, Consul Listoe writes from Rotterdam:

A Belgian newspaper notes the interesting fact that notwithstanding the efforts made in late years to encourage emigration to the Kongo Free State, the white population of this African territory, according to the latest official census, numbers only 1,958 persons. These are divided among the various nationalities as follows:

Nationality.	Num- ber.	Nationality	Num- ber.
Americans	33	Portuguese.....	72
Austrians	7	Roumanians	2
Belgians	1,187	Russians	8
Danes	39	Servians	1
French.....	53	Spaniards.....	6
Germans	42	Swiss.....	13
British	99	Swedes.....	81
Italians	176	All others.....	12
Luxemburgers.....	7	Total.....	1,958
Netherlanders.....	95		
Norwegians.....	25		

Use of Shingles in South Africa.—Consul-General Stowe, of Cape Town, April 30, 1901, requests information from American architects and manufacturers as to the efficiency, life, etc., of shingles as a roof covering. The consul-general explains that the De Beers Explosive Company, of Somerset West, Cape Colony, which has used shingles on all the isolated buildings of its explosive works, is desirous of roofing the company's residences with the same material. These houses will be built in or near cities, and the municipalities object to the use of shingles for roofing purposes. Mr. Stowe desires full data.

Cotton Goods for Brazil.—The following translation from the Berlin Handels Museum has been received from Vice-Consul-General Murphy, of Frankfort, May 4, 1901:

In Bahia, cotton drills (pantaloon stuffs) are obtained chiefly from Italy or from factories in Brazil. An Italian stock company has factories for this material in Milan and Sao Paulo, as well as a branch establishment in Bahia. It sends its salesmen through the interior of Brazil. Cotton shawls for women are supplied by Germany. These articles are now also being manufactured at Bahia. Cotton calicoes and fancy stuffs are furnished chiefly by Great Britain. The demand is principally for the cheaper sorts. Cotton tourists' and laborers' shirts come from Germany. The demand has recently very much increased, and sales are accordingly of growing importance.

Brazilian Freight Rates.—Consul-General Seeger, of Rio de Janeiro, April 24, 1901, informs the Department that the steamship combination which controls the traffic between Brazil and the United States has reduced its freight rates on coffee from 50 cents to 35 cents per bag of 60 kilograms (about 132 pounds) from Rio to New York. The new rate takes effect May 1.

Mr. Seeger advises owners of United States sailing vessels, in view of the unhealthy condition of the Brazilian import trade, to adopt the system used by the steamship companies and collect their freight charges in advance.

Sulphur in Venezuela.—Consul Ellsworth sends from Puerto Cabello, May 16, 1901, clipping from the Venezuelan Herald, as follows:

The company known as the "German Venezuelan Sulphur Company," which was floated in Germany with a capital of 2,000,000 marks (\$476,000) for the purpose of exploiting the immense sulphur deposits situated near Carupano, is actively at work setting up the aerial cable by which the sulphur will be carried from the mine to the port, a distance of about 18 kilometers (11.18 miles). The landing wharf is finished and the managers only await the termination of the wire-rope railroad to begin loading on a large scale.

Textile Plants in Salvador.—Consul Jenkins sends from San Salvador, May 16, 1901, translation of a recent law offering a bounty of 1 peso (about 45 cents) per 1,000 to any cultivator of 5,000 to 10,000 plants of maguey or other textile plant; 0.5 peso per 1,000 to any cultivator of 10,000 to 60,000 plants; and 0.25 peso per 1,000 for 60,000 and upward. The proprietors of the plantations shall be exempt from all military charges and services. Exporters of more than 5,000 pounds of maguey fiber shall enjoy exemption from all duties and taxes, and all tools and machinery for the cultivation and improvement of maguey shall be free of import duties.

Denmark's Commerce with Greenland.—Under date of May 8, 1901, Consular Agent Harris writes from Eibenstein:

The exports from Denmark to Greenland are principally food stuffs, firearms and ammunition, woolen goods, implements, and tobacco. Greenland exports to Denmark hides and skins of animals abounding in that region—such as the bear and seal—and whale oil and eiderdown. About 30,000 seal skins are sent to Denmark each year. In 1900, Denmark received 2,600 skins of the blue and white arctic fox, which were assorted and sold in packages of 10 each.

The commerce of Greeland is monopolized by the Danish Government. The Royal Danish-Greenland Company has 9 ships—5 brigs (each nearly one hundred years old), 3 barks, and 1 steamer. Ships of other nations can not touch at the ports of, nor travelers visit, Greenland without the consent of Denmark.

Olive Crop in Southern Europe.—Consul Van Buren reports from Nice, May 7, 1901:

A local newspaper calls the attention of proprietors of olive groves in this district to the diminishing production in Italy, due to the mild winters, the dry spring seasons, and the consequent ravages of the olive fly. It urges the owners of olive plantations in this district to adopt means for their improvement, claiming that better markets will be found on account of the decreased competition from Italy. It omits to state, however, that very much the same condition of things exists here, entire districts being ruined by the black blight or *noir*, as it is called here, while the ravages of the olive fly are an annual occurrence.

Consumption of Horse Meat in Frankfort.—Consul-General Guenther, of Frankfort, May 15, 1901, says that, according to the Frankfort News of even date, the consumption of horse meat in that city has increased very slowly. The first horse-meat dinner was given on October 6, 1847, at Bornheim, a suburb of Frankfort, under the auspices of the Society for the Protection of Animals. As soon as a horse was slaughtered—and at that time only young horses were killed—the society published the fact, and the meat was sold at 6 kreutzers (about 4 cents) a pound. The people did not take kindly to it, however, and it was not until fifty-four years later that the first horse-meat restaurant was opened. At the present time about 1,000 horses are slaughtered annually, and a separate slaughterhouse for this purpose has been built.

German Demand for Monazite Sand.—Consul Brundage reports from Aix la Chapelle, May 18, 1901, that the general manager of the Chemische Fabrik Rhenania, of that city (one of the largest chemical factories in Germany), desires to purchase 200 tons or more per year of what is commercially known as monazite sand. At present, this is obtained from Brazil, but the consul is informed

that this sand exists in North Carolina and other parts of the United States, and he suggests that miners should communicate at once with the company named, giving ability to furnish, percentage of thorium, and prices delivered f. o. b. wharf, Newport News, Baltimore, Philadelphia, or New York.

New German Veneer.—Consul Hughes, of Coburg, May 6, 1901, says that a Dresden firm has placed on the German market a thin wooden veneer known as "Kolumbusholz." The veneer is backed with a thick, impregnated paper and comes in rolls 20 meters (66.6 feet) long and about $1\frac{1}{2}$ meters (4.92 feet) wide. When dry, it is very strong and hard. It is nailed to wooden strips on the walls, and has the appearance of handsomely finished wainscoting. The veneer is also shown mounted on very heavy paper or paper mats pressed into different shapes, such as molding for doors, windows, etc. Light artistic effects may also be obtained in window frames, and the like. The prices quoted are from 30 to 50 per cent cheaper than for the all-wood article in use at the present time.

Liquid Bronze in Germany.—Consul-General Guenther, of Frankfort, May 20, 1901, reports that, according to Kuhlow's German Trade Review, a German chemist has succeeded in making liquid bronze free from metal. The process is described as follows: Ten parts of aniline red and five parts of aniline purple are dissolved, by means of a gentle heat, in one hundred parts of alcohol. Five parts of benzoic are then added and the mixture is boiled from five to ten minutes. The bronze is said to be especially adapted for bronzing wood or paper.

German Technical Bureau.—Deputy Consul-General Hanauer writes from Frankfort, May 18, 1901:

Steps are being taken for the creation of a federal bureau of technics in Germany. On the executive committee having charge of this plan are members of the leading chemical works, the German Association for Protecting the Trades, the Technical Association of Germany, the Association of German Engineers, the Union of German Patent Lawyers, the Central Bureau for Scientific Investigation, the Institute for Fermentation, the German Tobacco Association, electrical companies, and others.

Export Rebate on German Puddled Steel.—Under date of May 25, 1901, Consul-General Guenther, of Frankfurt, quotes from the Cologne Gazette that the German iron trust, between May 1 and December 31, 1901, will pay a rebate of 10 marks (\$2.40) per ton on all exported puddled steel that is bought from the trust. Proof of export must be produced, however and the rebate will be paid on the basis of the actual raw iron contained in the article exported. It is added that sales to shipyards enjoying the benefit of free importations will be regarded as exports.

British Complaints of American Iron.—Consul Marshal Halstead writes from Birmingham, May 17, 1901, that complaints of the quality of American iron have appeared in a local paper. It is stated that it is not available for purposes requiring great tensile strength and uniformity of quality. Whether these charges are true or not, says the consul, American merchants and manufacturers can understand why, with such statements current, there is a decided disinclination abroad to pay for shipments f. o. b. New York or any other American point.

German Enterprise in Greece.—Consular Agent Harris, of Eibenstock, May 9, 1901, says that the Athens correspondent of the London Daily Mail has telegraphed his paper that it is the intention of German and Austrian manufacturers to visit Greece about the middle of May for the purpose of studying the requirements of Greek industries, and that should suitable openings and markets be found branch houses will be established in that country.

Rates of Exchange at Harput.—Consul Norton, of Harput, April 30, 1901, transmits the following statement of the current rates of exchange in that city on New York, London, and Paris. There are no transactions with Hamburg or Amsterdam.

Description.	Selling price.	Purchasing price.
Sight drafts on New York for \$1.....	* £0.2257	* £0.2176
Sight drafts on London for £1.....	1.1050	1.095
Sight drafts on Paris for 20 francs.....	.8725	.865

* 1 Turkish pound = \$4.943.

Demand for Lamps in British India.—Consul-General Guenther writes from Frankfort, May 7, 1901, as follows:

According to Informations et renseignements de l'Office National du Commerce Extérieur, there is a strong demand for cheap, simply constructed lamps in British India. The article adds that the old means of lighting are being rapidly superseded by modern methods, and that manufacturers of cheap lamps may find it to their interest to correspond with importing firms at Calcutta and Bombay.

Russian Tariff Changes.—The Department has received a note from the Russian embassy, dated Washington, May 26 (June 8), 1901, saying that in view of the imposition of article 626 of the American tariff to Russian petroleum, the Minister of Finance of Russia has applied the advanced rates of duty to the following American products entering Russia: (1) White rosin or colophon, galipot, brewers' pitch (article 82); (2) bicycles (article 173, paragraph 3). This measure will go into effect two weeks after its promulgation.

Russian Northern Railroad.—Deputy Consul-General Hanauer reports from Frankfort, May 25, 1901:

An imperial ukase decrees the building of the Russian Northern Railroad, which is to connect St. Petersburg, Tichwin, Tscherepovetz, Valogda, Bui, Galitch, and Viatka. This line is to be begun next year and will be built by the Government, as also a branch from Bui, to connect at Danilow with the Moscow-Yaroslavl-Archangel line. A part of the latter is to be broad gauge and a bridge is to be built to cross the Volga at Yaroslavl.

New Method for Producing Anæsthesia.—Consul-General Guenther reports from Frankfort, May 20, 1901:

A new method for producing anæsthesia was discussed at a recent meeting of the medical society of Berlin. Dr. Wohlgemuth has constructed an apparatus by which patients inhale chloroform mixed with oxygen. It has been tried by many prominent surgeons, with results that are reported as satisfactory, the disagreeable sensations being obviated.

German Device for Removing Slag from Grates.—Consul Warner writes from Leipzig, May 15, 1901, that according to the Leipziger Tageblatt, a new device for removing slag has been

patented, by which the grate is lowered into the ash box or pit, a set of iron rods which fit into the spaces between the bars passing upward between them and knocking off any clinkers or slag which may have adhered to the bars of the grate.

Hygienic Exposition at Carlsbad.—Consul-General Guenther, of Frankfort, May 11, 1901, reports that a general exhibition of articles of hygiene, of the sick room, of food and drink, and also of those pertaining to the entertainment and comfort of the traveling public, will be opened at Carlsbad on August 10. This will be the first exhibition of the kind at Carlsbad, and from all reports it will receive every possible aid from the authorities and the people of that city.

Fire Automobile in Germany.—Consul-General Guenther, of Frankfort, May 15, 1901, reports that the Eagle Velocipede Works, of that city, has built an automobile for fire departments, which will be exhibited at the Berlin exposition for fire-extinguishing and life-saving apparatus. The automobile, adds the consul-general, carries four men, has a speed of about 11 miles an hour, and will be used to render first aid in case of fires.

An American Bank in Germany.—Deputy Consul-General Hanauer, of Frankfort, under date of May 17, 1901, says:

The establishment of an American bank in Berlin and London is contemplated. It is believed that this will open the way for American industrial undertakings and exports in the countries of the Old World.

Production of Light from Smoke in Belgium.—Consul Mahin, of Reichenberg, May 17, 1901, says that, according to a report from Brussels, a Belgian engineer by the name of Tobiansky has discovered a method by which smoke can be turned into light. In operating his device, the inventor collects the smoke from any kind of a fire and forces it into a receiver. It is then saturated with hydrocarburet, and a brilliant light results.

Through Shipments to Chicago.—Consul Listoe writes from Rotterdam, May 17, 1901:

Chicago as a seaport commences to attract the attention of Europe. A Rotterdam ship-broker firm advertises in the local papers, for the first time in maritime history, that it will accept freight to go through with bulk unbroken to Chicago.

Canadian Bounty on Pig Lead.—Consul-General Turner reports from Ottawa, May 23, 1901, that Parliament has ordered a bounty on pig lead manufactured in Canada—\$5 to be paid per ton for the first year, \$4 for the second year, \$3 for the third year, and thereafter \$2 per ton for fifteen years; the amount of bounty not to exceed \$100,000 for any one year.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
R. Guenther, Frankfort.....	June 3, 1901	Pellagra disease.....	Marine-Hospital Service.
Do.....	June 6, 1901	Malaria mosquito.....	Do.
Do.....	June 3, 1901	Grape harvest of the Rhine Provinces.	Department of Agriculture.
Do.....	June 15, 1901	Agricultural prospects in Germany.	Do.
Do.....	June 22, 1901	New enemy to grape vine.	Do.
Do.....	June 15, 1901	Population of Ireland.....	Census Bureau.
Do.....	June 24, 1901	Population of Belgium.....	Do.
Do.....	do	Strikes in Germany.....	Department of Labor.
Do.....	June 8, 1901	Employment in Germany..	Do.
Do.....	June 5, 1901	Swiss emigration.....	Bureau of Immigration.
Daniel Swiney, Cork.....	June 8, 1901	Irish emigration.....	Do.
E. Schneegans, Saigon.....	May 9, 1901	Rice-market report.....	Department of Agriculture.
J. C. Freeman, Copenhagen.	June 11, 1901	Swine	Do.
J. E. Hamilton, Morrisburg.	June 28, 1901	Canadian crop report.....	Do.
B. H. Warner, jr., Leipzig....	June 6, 1901	Live stock in Germany....	Do.
Do.....	do	Beehives in Saxony.....	Do.
W. R. Holloway, St. Petersburg.	June 19, 1901	Russian wheat crop.....	Do.
R. F. Patterson, Calcutta....	June 5, 1901	India wheat crop.....	Do.
J. P. Bray, Melbourne.....	May 30, 1901	Preservation of fruit.....	Do.
T. H. Norton, Harput.....	July 1, 1901	Rates of exchange.....	Treasury Department.

FOREIGN REPORTS AND PUBLICATIONS.

Railways in China.—The *Revue du Commerce Extérieur*, Paris, June 1, 1901, gives the following list of foreign railway concessions in China:

LINES AT PRESENT EXPLOITED.

(1) Line from Shanghai to Wusung, constructed in 1896, destroyed soon after, and reestablished in 1898; length, 18 kilometers (11.2 miles).

(2) Line to Pao-Ting from Tientsin, 60 kilometers (37.3 miles) north of the Great Wall by Shanhaikwan, with junction for Pekin; length from Shanhaikwan to Tientsin, 280 kilometers (174 miles); from Tientsin to Pekin, 135 kilometers (83.8 miles); north from Pekin, 65 kilometers (40.4 miles); total, 480 kilometers (298.2 miles). This line was constructed by the order of Li Hung Chang after 1876.

LINES CONCEDED SINCE 1897 (IN CONSTRUCTION OR PROJECTED).

Russia.—Line projected via Tsitsikhar, Kirin, Vladivostock, with branch line to Port Arthur and Niuchwang; length, from the Transbaikai region to Vladivostock, 1,425 kilometers (885.4 miles); branch line to Port Arthur, 800 kilometers (497 miles). These lines are entirely in Russian hands. They have an immense strategic importance; they form the shortest route connecting Europe and the Far East. Commenced in 1897, they will perhaps be completed in 1904-1905. The Russian network will be joined with the Chinese network by the line from Shanhaikwan to Niuchwang, with branch line to Sin-Minting, near Moukden.

Germany.—Triangular line from Kyao-chau to Chinan to Yen-Shun and from Yen-Shun to Kyao-chau; length, 1,000 kilometers (621.4 miles). This is the shortest route leading from the navigable part of the Yellow River to the sea. The loan was subscribed at Berlin June, 1899.

France-Belgium.—Line from Pekin to Hankau. This is the first railway decreed by imperial edict in China. The loan was placed in circulation in Paris and Brussels in April, 1899. The works on the north have been commenced by English engineers. The road is finished as far as Pao-Ting-fu, 80 kilometers (49.7 miles) distant from Pekin, and now running. The construction has stopped 100 kilometers (62.1 miles) from Pao-Ting-fu and the surveys are finished as far as Chun-Thé, or to 200 kilometers (124.2 miles) farther to the south. On the side of the Yangtze the works are completed to Sin-Yang, 200 kilometers (124.2 miles) from Hankau. This long line will be joined by a first branch at Tai-Yuan-fu and by a second at Tsinan-fu.

England-Germany.—Line from Tientsin to Chinkiang; length, 1,000 kilometers (621.4 miles), with branch line to Tsinan. The northern part will be confided to German engineers; the southern part to English engineers.

England.—The Pekin syndicate intends to build the line from Tai-Yuan to Fu-Shun-fu; length, 450 kilometers (279.6 miles). The British-Chinese corporation has obtained the concession for two lines starting from Shanghai, of which one will go toward the northwest to Su-chu, Chinkiang, and Nankin, and the other to the southwest—to Hang-chu and Ning-Po.

Southern China.—Line from Canton to Hankau, with branch line to Hongkong; length, 1,200 kilometers (745.6 miles). The road will be built by a Belgian syndicate.

Railways of the French Tonkin.—(1) Line from Lao-Kai to Yunnan; (2) line from Lang-Sou to Long-Shun; (3) line from Nan-Ning to Pakhoi.

Economic Condition of Egypt and the Sudan.—The following extracts are taken from a report by Lord Cromer, British agent and consul-general in Egypt, on conditions in Egypt and the Sudan for 1900:

COMMERCE.

The following table shows the value of trade in 1899 and 1900. The figures for 1900 are the highest yet reached in Egypt.

Imports and exports.	1899.		1900.		Increase in 1900.
Imports	*£11,442,000	\$56,557,806	*£14,112,000	\$69,755,616	\$13,197,810
Exports	15,351,000	75,879,993	16,766,000	82,874,338	6,994,345
Total.....	26,793,000	132,437,799	30,878,000	152,629,954	20,192,155

* Egyptian pound.

The increase in the value of imports is chiefly due to the growth of trade; also to the abnormal importation of grain, consequent on the low Nile of 1899, of which the full effects were felt in 1900, and the rise in prices and freights. The following are the principal increases in quantities during the year 1900, as compared with the average imported during the five years ended 1899:

Article.	Mean of five years, 1895-1899.	Quantity, 1900.	Increase in 1900.
			<i>Per cent.</i>
Cement.....barrels...	145,500	425,400	292
Sugar.....cwts...	44,550	216,640	262
Butter.....pounds...	1,821,000	3,498,700	92
Oil.....do.....	1,918,002	3,630,976	80
Sesame.....tons.....	3,670	6,362	73
Cotton goods.....yards...	7,329,160	12,804,930	74
.....pounds...	38,185,877	43,114,474	10
Tea.....do.....	225,972	328,830	45
Rice.....tons.....	20,711	30,408	47
Barley.....do.....	9,849	15,276	55
Salt meat.....pounds...	1,764,782	2,561,745	45

The sugar imported into the country comes almost entirely from Russia and Austria. The revival of trade with the Sudan accounts for the increase in cotton goods. Machinery imported shows an increase of 40 per cent. The gain in the importation of cement is due to the Assouan reservoir and other public works. There appears to be a considerable demand for candles, sugar, and tea in the Sudan. There is also a considerable increase in the importation of petroleum. Tanks have been erected both at Suez and at Alexandria for the purpose of importing petroleum in bulk; 9,892 tons were imported in bulk in 1900.

WORKS ON THE NILE.

Excellent progress was made during the year upon the works at Assouan and Assiout; it is expected that both will be completed and ready for the flood of 1902. The value of permanent work executed up to date at Assouan is \$4,943,000, of which \$3,212,950 was done in 1900. The average number of men employed upon this work was: Europeans, 1,114; natives, 7,026; total, 8,140.

The principal work done during the year was the construction of the foundations of the dam in three branches. Temporary stone dams were made round each of these openings and the water was pumped out. The rock below the surface is of inferior quality, and it was found necessary to carry the foundations of the dam 30 to 40 feet deeper than had been estimated. The total length of the Assouan dam is 2,180 yards, of which 1,853 yards of the foundation had been laid by the end of 1900. The average height of the masonry completed over this length is 4.3 yards above low-water level. Of the 180 undersluices, 130 were in progress in 1900, 20 of these being lined with cast iron. The total amount of masonry executed during the year was 5,297,490 cubic feet; 1,765,830 cubic feet of rock were excavated.

At Assiout, the foundations were laid on a length of 262 yards of the 907 yards of barrage. A length of 493 yards of floor was completed and the piers of 61 sluice openings were carried to a height above summer-water level. An attempt was made to take advantage of the low level of the river and carry the work right across. The work was nearly completed when the earthen dams surrounding it burst, and further progress was stopped for the season. The portion of the floor actually left untouched is 21.8 yards, but it is complete under 21 of the sluice openings. The total quantity of concrete and masonry executed up to date is 3,838,278 cubic feet, of which 2,523,053 cubic feet were executed in 1900. The total expenditure up to date has been \$2,760,458, including preliminary works, plant, and land; 39,223,675 cubic feet of earthwork have been executed, and 1,751,332 sand bags have been used; 2,108 lineal yards of cast-iron sheet piles have been driven; 381 Europeans were employed in the work in 1900, and an average of 12,500 natives at the time when the pressure was greatest. A special staff was occupied, throughout the year, in preparing the projects for the works necessitated in Upper Egypt by the transformation of large tracts of country from basin into perennial irrigation.

The value of the irrigation work was never better exemplified than in 1900, when, in spite of the lowest Nile of which any record exists, the cotton crop was not merely saved, but treated in so skillful a manner as to give a yield which a few years ago would have been considered impossible, even when the flood was most abundant.

THE SUDD IN THE BAHR-EL-GEBEL.

The removal of the greater portion of this obstacle was successfully accomplished in 1900, and through navigation was restored between Khartoum and Rejaf, on the Upper Nile. Instead of the sudd being, as had been supposed, a tangle of weed floating on the water and descending a few feet below the surface, it proved, in most cases, to be a mass of decayed vegetation, papyrus roots, and earth, much resembling peat in its consistency, and compressed into such solidity by the force of the current that men could walk over it everywhere, and even elephants could, in places, cross it without danger. The most effectual method of removing it was found to be by cutting deep trenches on the surface, thus dividing it into rectangular blocks of some 10 feet square. These were hauled out, block by block, by means of chains and wire hawsers attached to the gunboats.

EGYPTOLOGY.

Work has been proceeding at Karnak. It will be remembered that eleven columns in the Great Hall fell to the ground during the flood of 1899. Five further columns appeared to be in some danger of falling. These columns have now been dismantled; others have been strengthened and repaired. The débris of the stones which had fallen has been removed, labeled, and arranged in such a manner as to render it possible, should it ever be decided to rebuild these columns, to replace each separate stone in the precise position which it formerly occupied. I am informed on high technical authority that, in spite of every precaution, the remaining portions of this splendid monument of antiquity will of necessity be exposed to considerable risk every year at the period when the subsoil water is falling. The bases of the columns are of insufficient strength; the soil is unstable; each column supports an immense weight in the shape of roofing blocks; and the whole structure has been erected without mortar, and without bond of any sort.

RAILWAYS.

Of the improvements which have been effected during the year, that which has had the greatest effect is the putting into service of two hundred 30-ton American wagons. The complaint of want of wagons has almost ceased to exist, mainly owing to the great addition to our carrying power, which is represented not only by the capacity of the wagons, but by the fact that owing to their extreme lightness, our goods engines can draw 20 per cent more net load in these than in our ordinary stock. These very light wagons are produced by a special process, for which only two firms, one in England and one in the United States, possess the necessary appliances. The English firm lays itself out for a heavier class of work, which finds favor with English engineers; its prices are high, and, as it is extremely full of work, it is not in a position to give very quick delivery. The American firm lays itself out for a very light and cheap, while fairly serviceable, class of work, which is very rapidly produced. A little too much has been sacrificed to lightness in points which are, perhaps, of small importance in the United States, but of considerable importance here. These, however, are all minor matters, and are well worth sacrificing for the great gain in carrying capacity obtained in a short time and at very small cost.

The wagons have successfully met the special exigency for which they were ordered, and they have also given us experience which has enabled us to order a more satisfactory type for future use when the emergency is passed.

Thirty locomotives were ordered during the year, and it will probably be necessary to order about this number annually for some years, to replace worn-out engines and to meet the ordinary expansion of traffic. The American offers were in every case the most favorable; but as American firms do not make engines to our standard designs, one order for ten was given to a Glasgow firm for a design prepared by our locomotive engineer, which seems likely to prove very suitable for heavy passenger, and, perhaps, also for light, fast goods trains. It is very similar to a type introduced on the Great Western Railway some fifteen years ago. The time of delivery is, however, so long that it is a question whether we shall not have to give another order to America before they arrive.

The English make of rolling stock has been largely and successfully used in Egypt since the commencement of its railways, and the working staff is thoroughly conversant with its use. Thirty-one English locomotives have been introduced since 1885, and 12 are shortly due; 10 are passenger engines, slightly exceeding the standard type in weight and power, and 2 are powerful trial engines—

1 passenger and 1 goods—weighing, respectively, 65 and 68 tons (working order). English rolling stock also includes 70 first-class carriages and 600 wagons. The equipment of American make now in use covers 20 locomotives and 300 wagons, and there are 22 locomotives which have not as yet been put into traffic. The 20 locomotives in use are of the freight type, and inasmuch as they have already run an average of nearly 70,000 miles without having entered the workshops for general repairs, they have earned for themselves a satisfactory reputation as regards design and quality of material. The 22 American engines on order consist of 2 trial engines—1 passenger and 1 goods—of 65 and 67 tons weight, respectively (working order); 10 passenger and 10 shunting engines. The workmanship of these locomotives, with the exception of the working parts, is rough, and far short of the finish that is considered desirable by European engineers, and it would be a satisfaction if a mutual standard of finish could be fixed, in order that firms might compete on the same basis. The expense incurred in neatly finishing portions, other than working portions, is very considerable and goes far to account for the difference in cost between the American and English make of locomotive.

The make of American and English locomotives differs so widely that it does not follow that two engines—one American and one English—of similar weight and power, and equally good in design and quality of material, should give the same result in a strange land, where for many years the staff has been accustomed to the use of the latter type. In introducing a new type, intricate details have to be simplified to suit the capacity of the mechanic and the latter trained to the new conditions; moreover, the American engines appear to consume more coal. These two conditions, in a country where the mechanic adapts himself slowly and unwillingly to changes and where coal is expensive (\$6.08 a ton), must ever be important factors when comparing the utility of the English and American locomotive for use in Egypt.

From Belgium, 202 locomotives have been supplied to the Egyptian railway administration since 1886. These 202, although (with the exception of 24) constructed to the same drawings and specification and exactly similar, so far as the eye can judge, to 28 others of English make, have given very different results, especially in the boiler tubes. A comparison of the boiler tubes of 74 passenger engines, which are apparently identical, shows that the life of the tubes of the 18 engines of English make has averaged nine years and eleven months and 264,356 miles, as against six years and six months and 183,743 miles in the case of the 58 engines of Belgian make.

It is quite possible that in the course of the next two or three years, several branch lines will have to be closed to traffic for renewal, as bridges, locomotives, carriages, and wagons are wearing out almost as rapidly as they can be repaired or replaced. With all these drawbacks, there has been an increase of \$237,264 in the net earnings of the Egyptian railways during the year.

AGRICULTURAL LOANS.

Money may be advanced to the cultivators either by the Government or by a private bank. The bank incurs the whole financial responsibility, takes all the profits, and bears all the losses, and through its own agents does all the work of lending. In every district in which operations are undertaken, an agent is appointed, who receives a commission of 1 per cent per annum on any loan that he may make. These agents are placed under the general supervision of one English inspector, who visits the villages where operations have been undertaken. It is only when the stage of repayment is reached that the Government steps in. The taxgatherers collect the money due to the bank at the same time as the land tax. Money is advanced at the rate of 10 per cent, of which 1 per cent goes to the local agents in the form of commission. Of the remaining 9 per cent, it is estimated that about

3 per cent goes in covering the expenses of the bank, leaving a net profit of 6 per cent, from which bad debts have to be deducted. The whole of Lower Egypt is now comprised in the sphere of operations. In 1900, 9,500 advances, amounting in all to \$681,051, were made. The bank is now prepared to advance money in small loans up to a maximum amount of \$1,235,750.

CONDITIONS IN THE SUDAN.

Complete tranquillity has prevailed throughout all the districts administered by the Sudan government. A fairly good water supply and abundant rains have produced exceptional crops; the supply of grain is plentiful, and the market prices lower than they have been for many years. These facts, added to a general feeling of security and immunity from interference, have gone far toward establishing a condition of apparent contentment and satisfaction.

Not only has the opening up of communication with the far reaches of the Upper Nile placed the northern posts of Uganda in comparatively close touch with Khartoum and Cairo, but it has also enabled the Kongo Free State authorities to begin drawing their supplies by the Nile Valley instead of by the circuitous West African and Kongo route. Paucity of steamers is for the present an unfortunate obstacle to any trade development on an extensive scale, but it is hoped that with the next high Nile, more steamers may be brought up from the Assouan-Halfa reach. A government post has now been established near Kers, some 55 miles north of the Kongo Free State station at Reggaf.

MILITARY COLONIZATION.

Early in the year, it was decided to distribute among the various provinces a portion of the large garrison then concentrated at Omdurman, and, later on, the general tranquillity prevailing throughout the country rendered possible a considerable reduction of the Egyptian army. Many old Sudanese soldiers, whose discharge had been promised on the reconquest of the Sudan, were permitted to leave. Several of these elected to return to their old homes, but upward of 800 men, together with their wives and children, consented to form colonies in various parts of the Sudan. Villages for these colonists have now been established on the Blue and White Niles and in the Kassala district, and, as far as can be judged at present, they are likely to prove popular and of eventual advantage to the various provinces in which they are located. Each colonist is granted from 2 to 3 acres of good rain or pasture land and 1 acre of the Nile foreshore, besides grain for sowing. In addition, durra is given to each man, woman, and child, in order to support themselves until they have gathered sufficient crops from their own lands. Colonies are organized on a more or less military basis, a well-known and capable noncommissioned officer being selected as chief, or sheikh. Some of these villages have already started their own markets; it is hoped mosques and schools will be eventually provided. So far the experiment has proved a distinct success.

Wire-Rope Railway in Argentina.—The *Nachrichten für Handel und Industrie*, Berlin, April 10, 1901, calls attention to the wire-rope railway projected between Chilecito and the mining district of Tamatina and La Mejicana, about 21 miles. It says:

Chilecito, 3,526 feet above the level of the sea, will be the point of departure. The first 8 miles will be in a straight line, offering no special technical difficulties. The span between the first individual supports will there be 55.7 feet; but farther on spans of over 196.8 feet will be necessary. The line will go to a height

of 15,147 feet and will be worked by a double cable; the loaded cars going down will draw the empty cars up again to the lading station. The line can carry 400 tons of ore daily. Formerly, the ore had to be carried from the mines to the furnace on mules, this transportation costing about \$20 a ton. If in the beginning the line could carry only 50 tons daily, the freight would still be reduced to \$6 per ton, and by employing all the facilities it could be rated at \$2 or \$1.50 per ton. The mines interested have united and have guaranteed to deliver to the line a minimum number of tons for transportation, so that the line from the first day of its working can count upon more than enough freight to pay. The amount of ore now stored and waiting for transportation is estimated at over 10,000 tons. The working plan of the railway is already perfected. American and European houses will be asked to furnish estimates of cost, and it is hoped that the new undertaking will soon be begun.

Railway Project in Chile.—The Canadian Manufacturer, Toronto, April 19, 1901, says:

American and Chilean capitalists have lately been in consultation over plans for the completion of the line from Calera to Pisagua, in northern Chile, 800 miles remaining to be built. As a financial proposition, the road will not be of great importance, although it will give access by rail to the saltpeter deposits of the northern provinces, now reached only by water; but the project has great strategic value, and the Belgian consul at Santiago says, in an official report, that "the Chilean Government, having a direct interest in its completion, will undoubtedly be disposed to lend its financial aid to any serious proposition within the financial means of the country." According to the same authority, the enterprise will cost not less than \$10,950,000. The mining resources of the country and its satisfactory financial situation, thanks to its heavy receipts from saltpeter, make the realization of this project possible. The present Government of Chile appears to be anxious to provide a complete system of internal communication in the shape of a trunk line of railway traversing the country from north to south, with branches, where necessary, to the coast and to the valley of the Andes.

Bulgaria's Rose-Oil Production.—The Nachrichten für Handel und Industrie, April 18, 1901, says:

Early in 1900, a frost injured the opening buds in the rose plantations. Later the rose trees recovered, aided by copious rains, and the distillation exceeded by one-half that of the preceding year. The net result for 1900 did not fall much below 4,363,200 grams. The quality is generally considered superior, and the price for the finest oil is from \$129 to \$131 per kilogram (2.2 pounds).

Sugar Industry in Bulgaria.—La Gazette Coloniale, Brussels, January 13, 1901, says:

The beet-sugar harvest in Bulgaria for the year 1900 amounted to 70,547,000 pounds, as against 20,943,700 pounds in 1899. There are some 4,000 cultivators of beets, and the land cultivated extends over a surface of 4,000,000 acres, which it is believed will be largely increased this year.

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